AN INVESTIGATION OF THE RETAIL MARKETING MIX AND ITS EFFECTIVENESS IN SMALL SHOPS

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Thesis Summary

1. The recent history of small shop and independent retailing has been one of decline. The most desirable form of assistance is the provision of information which will increase the efficiency of these operators. The aim of the investigation is to develop a model of marketing mix effectiveness which may be applied in small scale retailing. A further aim is to enhance theoretical development in the marketing field.

2. Recent changes in retailing have affected location, product range, pricing and promotion practices.

3. Although a large number of variables representing aspects of the marketing mix may be identified, it is not possible, on the basis of currently available information, to quantify or rank them according to their effect on sales performance.

4. In designing a suitable study a major issue is that of access to a suitable representative sample of small retailers. The public nature of the retail activities involved facilitates the use of a novel observational approach to data collection.

5. A cross-sectional survey research design was used focussing on a clustered random sample of greengrocers and gent's fashion outfitters in the West Midlands. Linear multiple regression was the main analytical technique.

6. Powerful regression models were evolved for both types of retailing. For greengrocers the major influences on trade are pedestrian traffic and shelf display space. For gent's outfitters they are centrality-to-other shopping, advertising and shelf display space.

7. The models may be utilised by retailers to determine the relative strength of marketing mix variables. The level of precision is not sufficient to permit cost benefit analysis.

8. Comparison of the findings for the two distinct kinds of business studied suggests an overall model of marketing mix effectiveness might be based on frequency of purchase, homogeneity of the shopping environment, elasticity of demand and bulk characteristics of the goods sold by a shop.

KEYWORDS: Marketing mix, Sales performance, Shopping, Small business, Retailing.

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Contents

List of Tables and Figures

CHAPTER 1 INTRODUCTION

This thesis describes an investigation into the effect of the retail marketing mix on the sales performance of small shops. The present chapter outlines the reasons for undertaking such an exercise and the general structure of the material contained within the body of the thesis. A number of issues are addressed. Initially attention is drawn to the contribution that retailing makes to the U.K economy, following this, the concept of the "small shop" is introduced and defined and the importance of such shops within the retail sector is discussed. If small shops are in decline this may or may not be a matter for public concern, this issue is dealt with in some detail followed by consideration of possible methods of assistance. Research may be of immediate practical value to particular interest-groups or it may be of a more general and theoretical nature, this issue is considered and the objectives of the present investigation are identified. Finally a number of notable features of the study are outlined and a detailed chapter-by-chapter description of the thesis is presented.

1.1 The Importance of Retailing

In 1983 consumers spent £76,333 million in retail outlets in the U.K. (Euromonitor, 1985) this represents approximately 25% of gross domestic product. Retailing employs over 2 million people in full or part-time capacity; approximately 8% of the available

workforce and 10% of total employment (Employment Gazette August 1986). These figures indicate that, quite apart from its obvious role in the life of every citizen as the principal source of consumer goods, changes in the retail industry affect the economy in general and influence the working lives of its many employees.

1.2 The Small Shop

Discussion of the small shop raises problems both of definition and information. In the former case because of difficulty in deciding which aspect of size to consider, in the latter case because discontinuation of the Census of distribution means that it is difficult to assemble up-to-date statistical information.

Shop size may be measured in terms of; gross floorspace, trading floorspace (area actually devoted to selling and excluding stock rooms etc.), number of employees, sales turnover and sales volume. Apart from the shop unit itself it is also pertinent to consider organisation size; this is usually expressed in terms of the number of outlets operated. All of these methods have been employed at various times in defining "smallness", the chosen dimension being subjected to arbitrary division into size categories.

Dawson and Kirby (1979) considered shops with a turnover of less than £100,000 (1979 prices) and having fewer than 10 employees. Using data from the Census of Distribution of 1971 they estimated that approximately 90% of shops fell into this category.

For organisations the most commonly used cut off point is set at 10 shops; organisations operating less than 10 shops are termed "independents" and those operating 10 or more are known as "multiples". From published figures (SDA25 1982) it is possible to calculate that 80% of outlets are independently operated.

The large proportion of shops which are classified as small by these criteria is fortuitous. In strict mathematical terms not less than 70% of shops must be independents with low turnover and few employees. Given that multiples in general tend to operate larger shops than independents (see Chapter 2), it is probable that the actual figure is even higher than this. In the following discussion "small shops" are considered to be independently operated outlets with annual sales of £160,000 or less and having less than 10 employees, figures quoted may relate to only one of these criteria.

From the foregoing it is clear that small shops play a significant part in the industry as whole. Consideration of developments over time and in individual kinds of business (KOBs) reveals a rather disturbing picture however. In 1961 independents accounted for 54% of retail sales, by 1982 their share had fallen to 44%. Further evidence of a decline in small scale retailing is evidenced by a 35% fall in shop numbers and a corresponding rise in real turnover (15%) and employees per shop (39%) over the same period (see Table 2.6). These developments have not occurred in a uniform fashion across retailing although there is a general tendency for multiples to gain ground. Independent market share in groceries stood at 25% in 1982 while in greengroceries and antiques

the corresponding figures are 56% and 97% (SDA25 1982).

It may be concluded that although small shops are still predominant in terms of numbers, they are now responsible for less than half of all retail sales; a proportion which is the subject of continuing decline. This effect has been greater in certain kinds of retailing and is especially acute in the case of groceries.

1.3 Reasons for Concern about Small Shops

The present section will consider whether the situation facing small shops should be a cause for concern. The issues are by no means clear-cut. On the one hand it might be argued that the developments outlined above have occurred in response to public demand for certain types of goods at certain prices and in particular locations. The growth of multiple organisations and larger shops has resulted from a superior ability to satisfy such requirements, they also facilitate higher levels of productivity through economies of scale. Although this may be regrettable in terms of the loss of individual livelihood of the retail operators concerned, loss of employment in general and the disappearance of traditional features of the high street, precisely for these reasons the changes in question have resulted in a more efficient retail sector which meets the needs of the consumer in the 1980's

Although the foregoing argument has considerable merit, the continuing concentration of both shops and organisations has not been without its critics. A number of powerful arguments were put forward by the Committee of Inquiry into Small Firms, which

included retailing among the industries about which it gathered evidence. In its report (Bolton 1971:26) the Committee noted that small firms are important to society for a number of reasons:

a) They are a check on monopolistic and oligopolistic powers.

b) They are a breeding ground for innovation.

c) They play an important role in the community by supplying specialist and esoteric goods that cannot be economically provided by larger concerns.

These comments are intended to apply to small firms in general and it should be pointed out that small firms in retailing are not particularly noted for innovation. Clearly, however, the disappearance of small shops (even within a limited geographic area) could lead to oligopolistic abuses by large organisations and to increasing standardisation of the available product ranges. The view taken by the present government, that small firms have an important role to play in regenerating employment, is also significant.

Kirby (1981) notes that the closure of small shops has a detrimental effect on populations in rural areas particularly those who lack their own transport. In countries such as Norway this has been identified as a causal factor in rural depopulation (p.3). In a similar vein, it has been claimed that where large shops are situated in off-centre positions (in order to take advantage of greater site availability and lower rents) this may be to the detriment of less mobile customers if local or central facilities

are affected as a result (Dawson, 1983). Small shops are clearly an important amenity and their decimation might be regarded as a reduction in the quality of the environment.

It is clear that although it would be hard to refute the argument that the decline of the small shop has arisen in response to consumer preference for the type of facilities that multiples provide, there is evidence that the economically disadvantaged, the infirm and those with relatively esoteric requirements may not be adequately provided for under such a system. Additionally, reduced competition, resulting from such concentration, may ultimately work against the public interest. Any solutions to the problems facing small retailers need to take account of these two conflicting sets of factors.

1.4 Methods of Assistance

Recent years have witnessed a burgeoning of various initiatives which it is claimed provide assistance to the small firm; these range from government funded advisory bodies to the purely commercial activities of banks, business consultants, wholesalers etc. Regarding the small shop such efforts may be classified under three main headings

i) Provision of finance - Loans, assisted loans and grants.

ii) Provision of information and training - In matters of law, accounting, stock control, sources of finance, market research and other market information

iii) Co-operation and alternative distributive systems - Voluntary groups and cash-and-carry wholesalers.

A number of observations can be made on these alternative approaches. In the first place grants and assisted loans have, in the past, been regarded as politically unacceptable. They represent an interference in the workings of a free market and may be considered to be a subsidy to economic inefficiency (Smith 1971). There is some evidence that this attitude may be softening, however, as a result of government concern about high levels of unemployment. Initiatives such as the enterprise scheme, which subsidises new ventures for a limited period, are evidence of such a trend. Kirby (1981) makes a case for public subsidy to existing small shops in rural areas and describes how such a scheme was succesfully implemented in Norway.

Although in extreme cases, such as those cited, assistance of this type may be justified, in general this approach would almost certainly lead to unfair competition from those eligible for subsidy, and operate against the public interest. Other loans, even those supposedly designed for the small businessman, may prove to be difficult to obtain or too expensive to be viable, especially in periods of high real interest rates such as are being experienced at present.

A number of defects have also been noted in the effectiveness of voluntary groups and cash and carry systems. The former were first developed in the 1950's and have enjoyed considerable success in both the U.K. and Europe. They represent an attempt by

wholesalers and retailers to take advantage of economies of scale, in purchasing and the provision of services (advertising and training), by entering into co-operative arrangements with each other. The main problem is that a major cost disadvantage of small shops arises from physical distribution itself (Thorpe, Kirby & Thompson, 1972), a factor which is not diminished by such arrangements (Kirby 1974). A further problem with this type of approach is that the degree of independence of the shops involved is inevitably eroded with a corresponding threat to competition and variety. Cash-and-carry wholesalers (which offer lower prices without credit or delivery) have also enjoyed considerable growth in recent years. Kirby (1974) points out that the lower prices offered may simply reflect the shift of delivery costs and finance on to the retailer himself. In addition some grocery retailers have found that it is possible to buy cheaper in supermarkets than from these outlets (Watkin 1976).

The provision of information and training, whether by means of educational courses or through the use of professional consultancy, probably represents the most attractive approach to assistance. Small retailers are characterised by a low level of education and lack formal training to a large extent (Bolton 1971, Dawson and Kirby, 1979). It may be supposed that they rely primarily on their instincts or experience in making business decisions. Education and information provision may lead to more efficient business methods, so that small retailers have the best possible opportunity to compete effectively against their larger competitors and to develop ways to overcome disadvantages deriving

from relative scale of operation. In addition to publicly funded programs organisations such as voluntary groups and the Distribution Industry Training Trust also promotes training either in the form of consultancy or training groups (the latter aim to bring together small retailers and those who are in possession of suitable experience or knowledge).

Information and training in matters of the law, accounting methods, computer applications and stock control are clearly essential to the modern business of whatever type. Such assistance is extremely valuable. In the matter of marketing however the information available and the methods typically advocated are of much less utility to the small shopkeeper. The classic approach to professional marketing revolves around the market survey of the attitudes, requirements and behaviour of existing or potential customers. Such surveys need to be carried out according to rigorous standards of sampling and data collection, they tend to be extremely expensive even for relatively modest sample size. Such information may be complemented by obtaining data, on population characteristics and buying habits, from commercial organisations, this information may also be expensive.

The approach described above is often used by multiple retailers engaged in diversification into new markets or new products. Problems for the small retailer arise not only in justifying the expense of such an exercise but also in quantifying the impact of a given strategy from such data. A manufacturer or large shop or chain may be able to reach a given target market with much more certainty than a single small outlet because the

promotional costs involved may be absorbed by a much larger volume of sales. For non-innovative products even greater problems arise as a result of the activities of competitors. Customer surveys, therefore, may be of only limited usefulness to the average small shopkeeper in making critical decisions about product, pricing, promotion and location.

Alternative approaches to making decisions about the retail marketing mix involve building upon previous experience with varying degrees of sophistication. Davies (1973) notes:

> There has been considerable research in recent years into the effectiveness of retail store operations particularly in "chain" companies of supermarkets, using multivariate statistical procedures and computer methods [to analyse data on existing shops]. Little of this research has been reported through the academic media since it involves analyses of private and confidential information.
> [present author's brackets]

Such methods are not available to the smaller retailer, nor can these organisations take advantage of information gathered by others owing to its commercial sensitivity.

This section has outlined a number of alternative approaches to assisting the small retailer. It has been argued that while information provision is probably the most desirable form of assistance as it may increase efficiency, such information is inadequate at present. Small shopkeepers must make vital decisions about pricing, promotion, product and location purely upon the basis of their own limited experience, in this respect they appear to be at a disadvantage to their larger counterparts. It is apparent that a considerable degree of assistance might be rendered

to the small shopkeeper by making good this deficiency. This is the primary objective in setting up the present investigation.

1.5 The Importance of Theory Building

Earlier sections have outlined the case for the study of the effect of marketing mix variables on performance in small shops. A further issue concerns the extent to which such research should focus on specific problems of specific groups or attempt to address issues of wider impact which relate to a larger constituency of interest. A study might focus on very narrowly-defined type of retailing and produce a very precise description of the interactions involved or it might devote the same order of resource to a more comprehensive study (taking in a number of different types of retail operation) with correspondingly less precision.

Most studies to date have followed the former course and have been concerned either with a limited number of influences (i.e location), with the activities of a single firm or even a single shop. It is this tendency for research to be of an "applied" or "practical" nature that led Robert Bartels (1981) to conclude that "the theoretical potentialities of retailing research.... have not been achieved". Bartels noted the existence of diverse "theories in retailing" which appear to exist at the expense of an overall "theory of retailing". The situation is one in which most research is carried out in response to particular problems as they arise, with corresponding duplication of effort and a lack of standardisation of methods which further inhibits the development

of a coherent body of knowledge.

It is the view of the present author that the development of a general theory of the effectiveness of marketing mix variables would enhance interest in the field and provide a framework for future research efforts. It is a further aim this investigation that, while not neglecting immediate practical issues, it should contribute materially towards the achievement of such a goal.

1.6 Objectives of the Investigation

Two major objectives have been identified in this Chapter:

> Objective 1 - To provide information on the effect of marketing mix variables on the performance of small shops. Such information should be suitable for economical use by small shop operators in improving sales performance. A degree of quantitative precision would be desirable as this would facilitate cost-benefit analysis of potential marketing strategies.
>
> Objective 2 - To contribute to the development of a general theory of marketing mix effectiveness in retailing.

These objectives are the principal guiding factors of the investigation.

1.7 Notable Features of the Study

The study of retailing which is described in Chapters 5 to 7 of this thesis incorporates a number of unique features to which attention is drawn. They are as follows:

a) It is the only study, known to the author, which applies multiple regression analysis techniques to an investigation of the effectiveness of marketing mix variables in a random sample of retail outlets. This condition of randomness facilitiates confident generalisation of the results beyond those shops actually studied.

b) Direct non-participant observation was the principal method of data-collection. Such a method obviates errors such as self-selection, reactivity and other distortions originating with subject participation and associated with more widely used self-reporting techniques (see Chapter 4).

c) The analytical method used goes beyond a simple acceptance of the results of statistical manipulation. Putative models are subjected to validation and comparison along a variety of dimensions including; the proportion of variation in performance between shops which is explained, acceptability in terms of the existence of a plausible theoretical explanation, and ability to predict within expected limits the performance of shops other than those from which the

model is derived.

d) The results of the study are used to reinterpret past trends in the two kinds of business (KOBs) studied and as a pointer to likely future developments.

e) The study focusses on two very distinct retail KOBs, this facilitates (tentative) theoretical model building with implications for retailing in general.

1.8 The Structure of the Thesis

This thesis is presented in nine chapters (including the present one); Chapters 2 and 3 deal with background material and existing literature on the subject, Chapters 4-9 describe the study itself and implications of the findings.

Initially a brief outline is made of the historical context in which the study is set. Chapter 2 traces a number of important developments in retailing in recent years. Although structural matters (such as organisation size and type) are discussed the chapter focusses mainly on changes in the areas of product, price, promotion and location. An attempt is made to explain these developments in terms of variations in enviromental factors over time; these include financial markets, market demographics, and technological and legal innovations. The matters discused in the chapter are important, not only because they give clues to the principal influences which affect trade and the manner of such interaction, but also because they assist in the theoretical

evaluation of the results of the investigation. In addition, the material is of interest because the results of the empirical study are used to re-evaluate the trends which have been identified.

Existing literature on the effectiveness of the retail marketing mix is considered in Chapter 3. As an initial step in identifying the marketing mix variables which affect retail trade, existing literature is examined for evidence of the impact of particular influences on shop sales and the manner, cause and variety of such interaction. All types of retailing are considered and even the most tentative influences are included. An attempt is also made to identify the relative importance of such influences and the manner in which this varies between different types of retailing. The methodological strengths and weaknesses of the various approaches which have been used are subjected to particular scrutiny.

Chapter 4 is concerned with methodological issues concerning the design of suitable empirical study. All the major aspects of the research process are considered and a problem-solving approach is applied to the identification of an optimum solution from a range of alternative approaches given the objectives of the study, known sources of error, the lessons from other research and the available resources.

The general approach derived in Chapter 4 is used as a basis for a more detailed operational specification to the main phase of empirical study. This material is presented in Chapter 5. A number of features are incorporated into this specification as a result of

pilot work (described in an appendix). Details of the sampling methods, existing hypotheses and the operational definitions of all variables are included.

The process of analysis and the results are presented in Chapter 6. The data is subject initially to a number of tests in order to establish its conformity to stated assumptions and its suitablity for analysis by the chosen techniques. Models evolved by computer based multiple regression analysis (MRA) are subjected to a multi-stage evaluation and comparison process in order to identify the best possible formulation.

Chapter 7 considers the results of the analysis in terms of their implications for the types of retailing which were studied. Both qualitative and quantitative aspects of the models are included. The relative importance of variables, the precision of any predictions about the performance of individual shops and the possibilities for reinterpretation of past and likely future trends are also considered.

Chapter 8 considers how the results of the present study might be generalised to other types of retailing, given the different types of products involved and the likely impact of these differences on consumer purchasing behaviour.

Finally the conclusions and recommendations are presented in Chapter 9. The achievements of the study are evaluated in terms of the initial objectives, and the value of the contribution to knowledge in this field is considered. A number of recommendations are made, these arise both from the implications of the findings of the present study for small retailers themselves, and from the

lessons for those engaged in research in this field.

CHAPTER 2 RECENT DEVELOPMENTS IN RETAILING

Summary

2.0 The Chapter deals with changes that have occurred in retailing over the last 25 years, of particular interest are those developments that have a bearing on the retail marketing mix. Causal factors external to retailing are first identified and the nature of their influence is explained. The principal changes in retail structure and practice are then outlined.

2.1 External causal factors relate to; financial and other markets, planning and the law, technological developments and the social and financial situation of consumers themselves. The situation is one of a generally (but not entirely) increasingly affluent, mobile, busy and price conscious population being catered for as a result of increasing resource availability and technological innovation. This occurs within the confines of planning policies, legal controls and the necessity to provide an adequate return on investment capital.

2.2 Major changes in retailing include increasing organisational integration, increasing shop size, less local shopping, increasing use of information technologies, increasing part-time employment at the expense of full-time and self-employment, increasing use of advertising, self service and credit and lowering of prices for non-food items.

2.3 For the future it seems likely that multiple penetration in retailing will continue to increase as operators take advantage of both marketing and operational advances offering considerable economies of scale.

2.0 Introduction

Retailing has been defined as:

> The final link in the distribution channel connecting producers and consumers (Mason and Meyer, 1981:17)

It is the essence of retailing that it concerns the sale of goods or services directly to the final consumer rather than to an intermediary such as a wholesaler or processor. Any activity of this type which is carried on by way of business may be considered to be a retail activity. Shops are places where retailing is carried out on a regular basis and involve face to face contact between the consumer and the retailer or his/her agents. Non-shop retailing includes mail order selling and the activities of public utilities such as gas and electricity in which an homogeneous product (with which the customer is highly familiar) is transferred directly to the place of consumption.

The present chapter examines some recent trends in retailing. Of particular interest, in view of the objectives of the investigation outlined earlier, are changes involving aspects of the marketing mix. The discussion is not confined so narrowly, however, since it is often the case that major issues concerning ownership and distribution channels have considerable ramifications for the retail shop marketing mix. Every effort is made to trace the developments described to causal factors in the external environment.

The purpose of the discussion is primarily to set the scene for the more focussed investigation which follows, it is also the

case that an examination of recent trends gives some indication as to which marketing mix variables are important in determining shop sales and the nature of their influence.

The chapter is two parts, initially a number of external causal factors are identified, these are thought to impinge on retailing but are external to the retail distribution system itself. The nature of the impact of these factors is outlined. In the second part, changes in retailing itself are described. The various aspects of retailing considered are highly interdependent in addition to being influenced by external factors. It is also the case that events within retailing may themselves bring about changes in the external environment.

In a review of this kind it is only possible to deal with the more prominent issues and many minor points have been overlooked or only given the most cursory consideration.

2.1 External Factors Affecting Developments in Retailing

A number of external factors may be identified as having an important influence on developments in retailing. These fall into four main categories as follows:

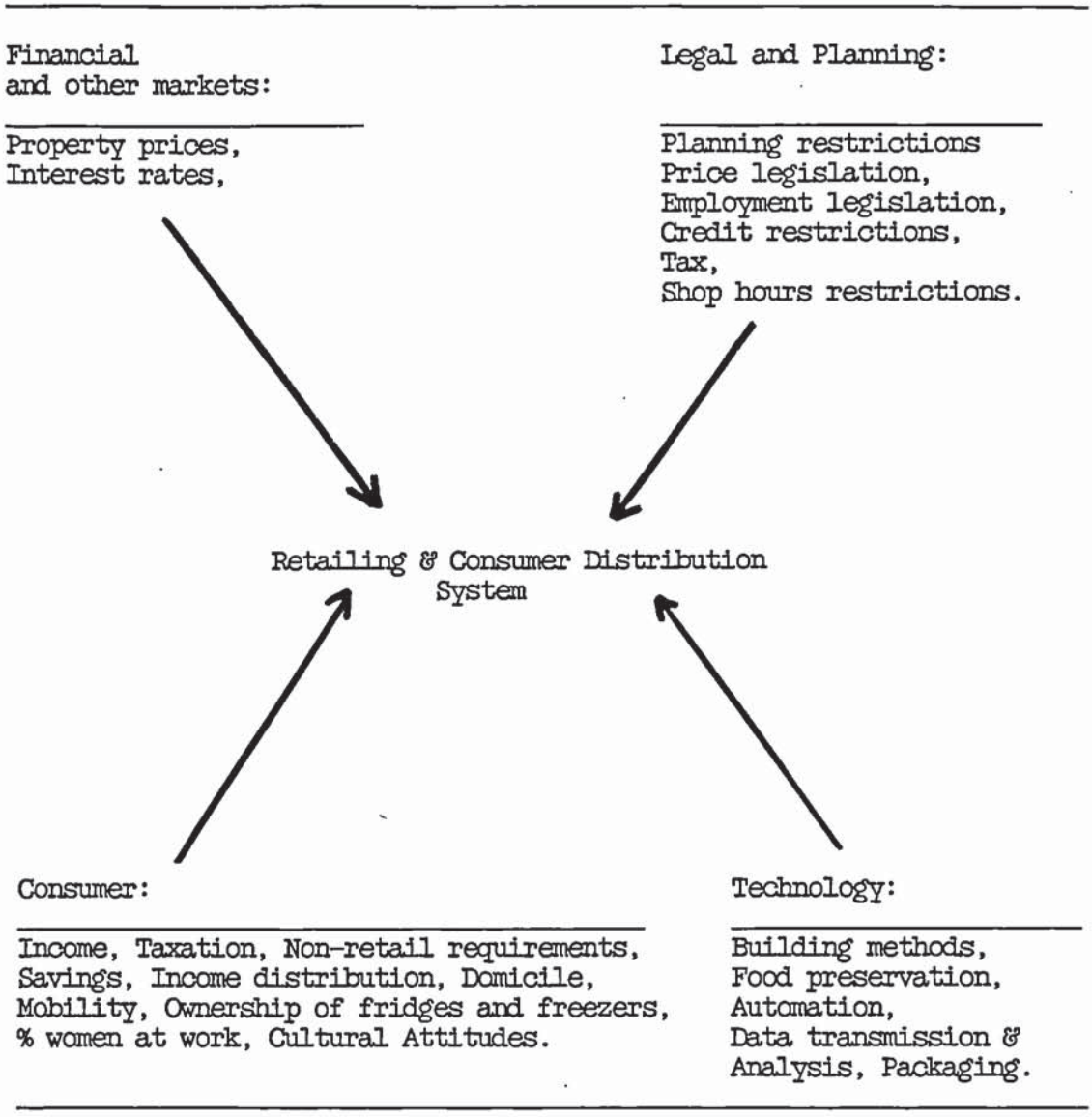
1) The activities of financial and property markets.

2) The activities of law makers and planners.

3) Technological and scientific advances.

4) The resources and facilities enjoyed by consumers, their activities and attitudes.

FIG.2.1 External Factors which Influence Developments in Retailing and Consumer Distribution Channels.



These factors act either directly, in tending to push the retail system in a particular direction, or indirectly in facilitating a change the pressure for which originates at another source.

2.1.1 Financial and Other Markets

Important issues arise concerning the price and availability of property and finance. Property prices have affected retailing in two ways, firstly by encouraging the expansion of large enterprises holding large property portfolios, secondly by discouraging the smaller and less efficient enterprises who cannot afford the increased rentals at prime locations. Hedderwick et al (1979) note:

> The stores sector.....recovered strongly during the 1970's. Over the last decade it has produced a real return over and above inflation. This strength is best explained by the bull market in shop properties and by favourable tax treatment rather than by earnings and dividend growth which have underperformed the market average. Property assets now account for over 95% of the sectors total market capitalisation. (p.39)

The conclusion of these investment consultants was that rising property values have enabled large retail groups to maintain their equity at high prices in spite of relatively poor trading performance. Such a situation benefits these organisations because they are able to easily attract additional finance for expansion.

Rising property values may also act as a spur to merger and takeover activities if a company appears to be undervalued or suitable properties for expansion are in short supply.

Some indication of the extent of rise in property values is given by rental growth. Between 1965 and 1978 average rents rose by between 400% and 600% (Hillier Parker 1979). This rise, which

represents an increase of up to 50% in real terms, to some extent reflects increased demand for these properties from retailers. Much demand also originates outside the traditional types of high street retailing as banks, estate agents and building societies have expanded their own networks. The role of planners in restricting the growth and redevelopment of existing centres and the development of new ones during the 1970's has also probably played a part in bringing about this increase.

Although of benefit to property owners, the rise in values and rentals is to the disadvantage of those who require to rent them. Values placed upon prime positions, even though justified in terms of the potential value of trade may simply be beyond the means of a small operator who is unable to meet the initial costs involved. Rising rentals also tend to eliminate the less efficient retailers and those who operate in trades with limited market potential.

Financial markets, through the medium of interest rates, may affect retailing in two ways; in the first place where interest rates (and consequently the dividends expected by investors) are high retailers may seek to expand by advantagous takeovers of possibly undervalued companies, rather than by organic growth if (as appears to have been the case in the past) this is not attainable by conventional trading performance. In the second place high interest rates increase the pressure on managers to achieve high levels of operational profitability through increased efficiency; cost cutting or market expansion thus become paramount concerns. Conversely where interest rates are low this encourages retail expansion through borrowing while investors are encouraged

by the relatively high returns available in the form of dividends. The state of financial markets also affects retailing through the provision of credit to purchase goods. Although it is arguable whether the availability of credit actually affects the total amount spent in retailing, it seems likely that it affects the type of goods which are purchased, sales of consumer durables are without doubt encouraged by easily obtainable finance. Trends in interest rates from the early 1960's are represented in Fig. 2.2. Although they refer to bank base rates (actual interest rates are likely to be higher) these are indicative of general trends. In real terms interest rates fell from between 2% and 3% per annum in the 1960's to negative levels throughout the 70's rising again to what are probably record levels of up to 6% during the early 1980's.

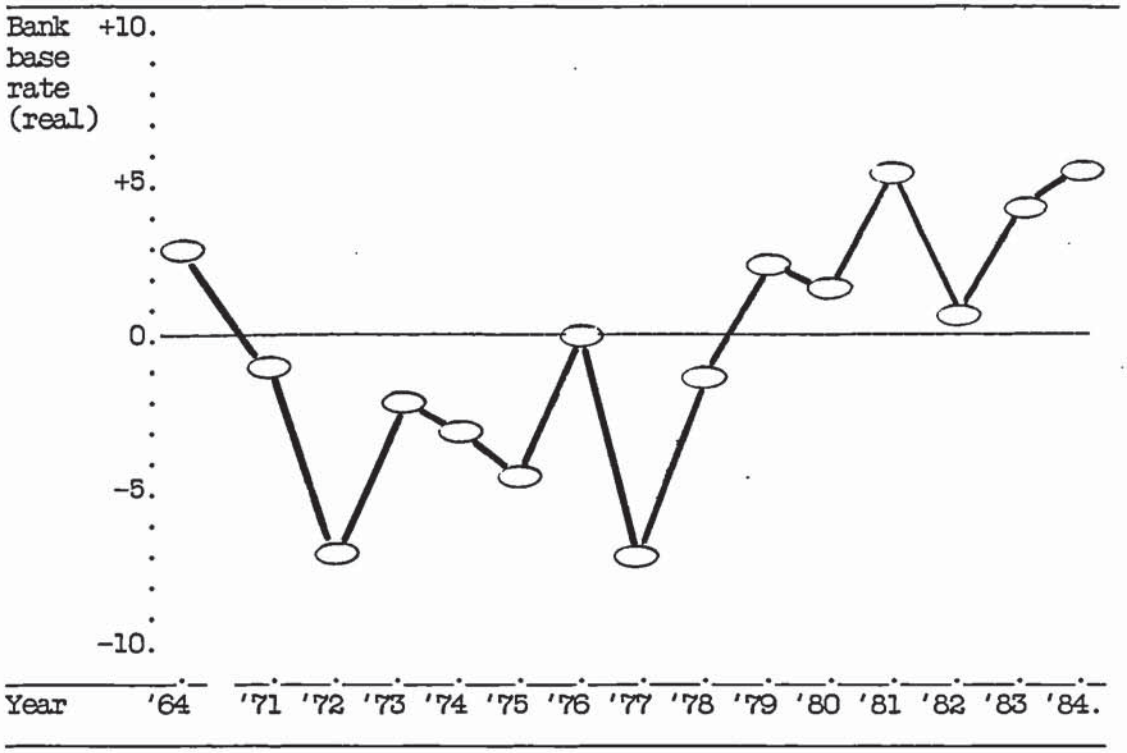
The considerable rise in oil prices at the time of the "oil crisis" of the early 70's has increased the cost of physical distribution and this has led many companies to seek increased efficiency in this area (Retail and Distribution Management Jan/Feb 1983, Whimster 1981).

2.1.2 Planning and the Law

Planners and law-makers may act either to shape retailing and consumer distribution channels directly or they may simply act to facilitate changes, the pressure for which arises elsewhere.

During the 1960's there was much interest by established retailers, and from investors in property, in replacing traditional types of shopping centre with new and enlarged facilities. All such developments require permission from the local land use planning

FIG. 2.2 Real Interest Rates 1964–1984



	'64	'71	'72	'73	'74	'75	'76	'77	'78	'79	'80	'81	'82	'83	'84
Bank rate	7	5	8	13	12	11	14	7	13	17	14	15	10	9	10
Annual inflation	4	6	15	15	15	15	14	14	14	14	12	9	9	5	5
Real interest rate	+3	-1	-7	-2	-3	-4	0	-7	-1	+3	+2	+6	+1	+4	+5

Base rate is the London Clearing Banks' base lending rate
Source: Financial Trends 1961-86

Inflation is given by the Retail Price Index for all items.
Source: Social Trends 1986

authority. In general planners appear to have approved of such schemes thus encouraging the replacement of collections of relatively inexpensive small units with purpose built developments comprising more expensive and often larger new units. Such developments have been cited as having played a part in the reduction in the numbers and importance (in terms of market share) of the smaller shop and the independent retailer. While planners may have been sympathetic to redevelopments of traditional centres they have been less so towards large out-of-town centres of the type that have developed in the USA.A proposal to build a new regional centre at Haydock park near Manchester in the 1960's resulted in a lengthy Inquiry and was ultimately rejected. A report prepared by Manchester University (1964) argued that a centre of this type would draw a considerable amount of trade from traditional centres in the area and it was mainly in order to protect investment in such centres that the scheme was rejected. This inquiry and its conclusions appear to have been regarded as a precedent by other planning committees faced with similar decisions and very few such centres have been constructed.

With regard to individual shops, as opposed to centres, the planners appear to have been much more flexible especially with regard to units up to 25,000sq.ft. in size (Jones 1982). Larger units, especially those engaged in mixed merchandising and often described as "hypermarkets" have met with considerably greater resistance in gaining approval. In 1972 the Department of the Environment issued a directive that all applications involving units in excess of 50,000sq. ft. would require its approval, in 1976 this figure was increased to 100,000 sq.ft. with the

implication that very few such stores would be permitted. In fact only 1 in every 4 applications subjected to DoE scrutiny have been accepted (Davies 1983).

Latterly there appears to be some evidence that supermarket chains have been finding it increasingly difficult to obtain permission for out-of-town developments (Hedderwick et al 1979) and this may be evidence of a change of policy on the part of planners.

In general, restrictions on new developments in out-of-town and edge-of-town locations, while protecting the position of city centres and other smaller centres, also increases pressure on space within their limits. Where larger trading units are sought after this tends to lead to increased values being placed on retail properties.

Another way in which planners, both at local and national level, have influenced retailing is through the provision of roads. Total expenditure on road-building and maintenance rose from around £1,000M per annum in the early 60's to around £3,000M in the 1980's (British Road Federation, 1961-83). These figures, which are stated in 1984 prices, undoubtedly reflect a considerable increase in road provision over the period. Better roads tend to increase both the ownership and use of cars and have encouraged the growth of large stores in road-accessible locations.

Other legal factors which affect retailing are restrictions on prices, credit and trading hours, employment legislation and indirect taxation. By far the most significant aspect of intervention on prices in recent history has been the abolition of Resale Price Maintenance in 1964. Prior to this retailers were obliged to sell goods at a price specified by the manufacturer, the

elimination of this requirement opened the way for price competition and made way for lower price levels. This acted to the detriment of those operators who, for one reason or other, were faced with higher than average costs.

At various times governments have applied "credit squeezes". These usually involve restrictions on the percentage of the price of a consumer item which may be supplied by credit and on the timescale over which such debts are repaid. In general, tightening of credit restrictions tends to reduce the level of sales of consumer durables, while loosening them seems to encourage such sales. The introduction of new forms of consumer credit, including personal loans and second mortgages, clearly tends to undermine the effectiveness of such restrictions since they are not linked to particular types of purchase as is the case with hire-purchase. Restrictions on hire-purchase credit were in any case removed completely in 1982.

The most significant aspect of the many regulations governing employment was the introduction of Selective Employment Tax in 1966. This measure was introduced in order to encourage employment in manufacturing. Although short-lived it achieved its intended aim of producing an employment shake-out in retailing and produced an acceleration of the move away from more labour intensive forms of selling.

Hedderwick et al note that the tax advantages enjoyed by large firms have encouraged the development of multiple retailers. Stock Appreciation Relief (SAR) was introduced in 1974 as a means of permitting businesses to avoid paying tax on gains due to inflation. Under this system all increases in the value of stocks

from year to year could be offset against taxable profits without regard either to the existence of increases in stock volumes or the method of financing. Since many large retailers were at this time undergoing considerable expansion and stocks were to a large extent financed through credit given by suppliers, SAR had the effect of acting as a financial subsidy to large retail organisations. Hedderwick et al estimate that around 26% of expenditure on capital assets by these companies was financed in this way during the late 1970's. SAR was replaced in the early 1980's by a more equitable working capital based system.

The introduction of VAT in 1974 has also had an impact on retailing. VAT applies to a much wider range of products than its predecessor (purchase tax), its main impact however is in terms of the bookkeeping requirements which many small firms, operating without sophisticated accounting systems, have claimed to find onerous.

Shop hours are currently governed by the Shops Act (1950). Although this much-criticised statute remains in force there have been numerous attempts to revoke it in recent years in order to extend the times which shops may remain open and the range of products that may be sold. Notwithstanding the failure of the most recent of these attempts in the Spring of 1986, it seems likely that restrictions on late night and Sunday trading may be removed within the near future. It is clear that enforcement of this legislation by local authorities is extremely inconsistent and many traders, both large and small, habitually contravene the current regulations.

The irradiation of food products (in order to preserve them)

is as yet prohibited by statute. Its endorsement by the World Health Organisation has prompted the setting-up of an inquiry by Her Majesty's Government and it seems likely that this process may be legalised in the near future (Kimber 1985)

Food production is subject to a complex system of subsidies designed to protect agricultural production from the destabilising effects of market forces. The U.K.'s membership of the EEC caused a change in the mechanism of support from that of a direct subsidy to producers to intervention buying in order to maintain artificially high prices where world market prices fall below a predetermined level. This may have contributed to rising food prices since the early 1970's.

2.1.3 Technological Advances

Relevant technological advances include those relating to the design and construction of buildings, chilling and irradiation of food, packaging, automation, data transfer, storage and analysis. Modern construction techniques facilitiate the rapid construction of very large buildings at economical cost. These developments have made it possible for retail companies both to expand rapidly and to investigate new types of operation (such as off-centre superstores) with less financial risk than would formerly have been involved.

Chilling and irradiation are techniques which impede the ripening and perishablity of fresh foods without substantially altering their characteristics (as is the case with freezing). Their main effect is to permit a longer distribution timescale for these goods thus reducing general distribution costs particularly those due to wastage. Technologies for both systems are currently

available but have not been widely implemented.

Advances in packaging technology permit vacuum wrapping for foods such as bacon and cheese and blister packs for small items such as screws and enable these products to be handled with minimum effort and sold by self-service methods.

Automation has applications in warehousing and permits more accurate performance at lower marginal cost due to reduced manning.

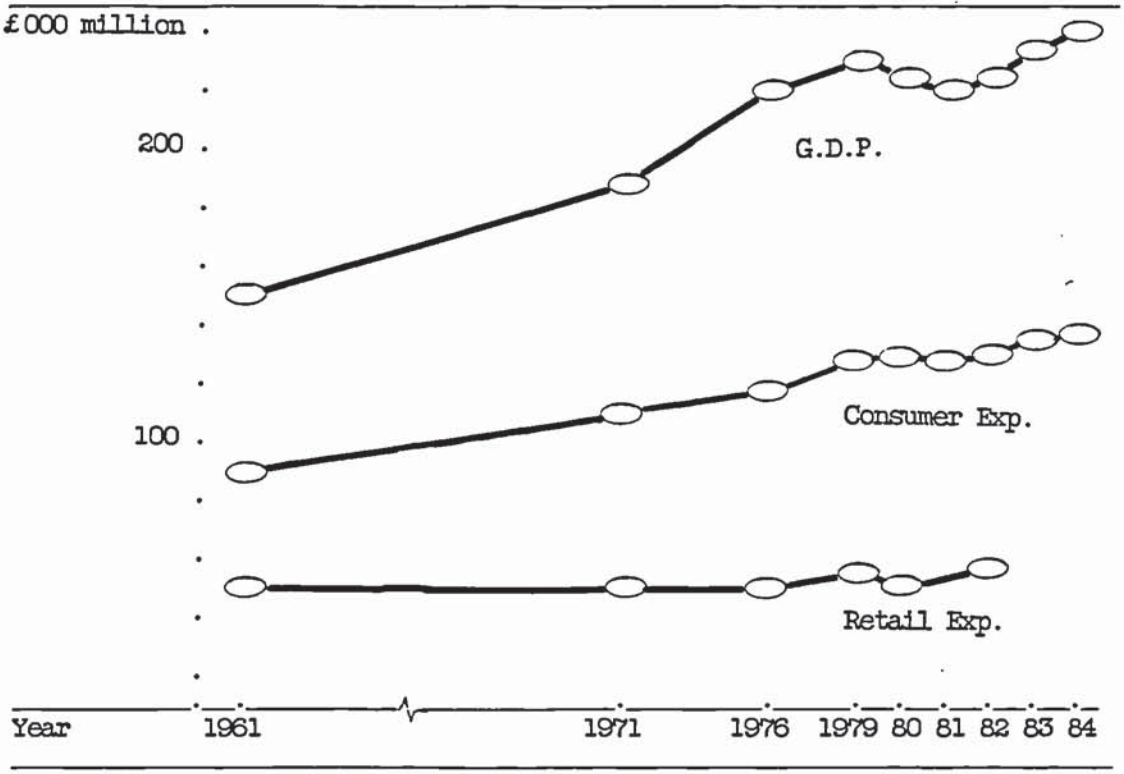
Advances in data storage, transmission and analysis have been considerable. They are linked to the spread of computers and the development of sofware packages for a variety of purposes. Applications in retailing include; shop location and warehouse location analysis, warehouse operation and transport logistics, stock control and monitoring of sales.

2.1.4 Changes in Consumer Characteristics

The shape of retailing systems is influenced to a large degree by the characteristics of those to whom the goods are sold. The particular consumer attributes which are of interest here include spending and its distribution among the population, domicile, mobility, employment characteristics, extent of possession of storage facilities and cultural attitudes.

Consumer spending is that part of income which is left after taxation and savings have been subtracted. Between 1961 and 1978 consumer expenditure rose in real terms by 53%, over the same period incomes (GDP) rose by 55%; the difference reflects a parallel tendency for taxation and savings to rise both in real terms and as percentage of total income. Consumer expenditure is divided between retailing and other destinations, including housing

FIG. 2.3 U.K. Gross Domestic Product, Consumer Expenditure and Retail Sales at Constant Prices 1961-84.



	1961	1971	1976	1979	1980	1981	1982	1983	1984	1984*
G.D.P.	148.6	195.5	225.0	235.4	230.0	226.8	230.3	238.1	242.3	322.3
Consumer Exp.	89.7	114.4	125.3	137.6	137.9	136.6	137.6	143.1	145.5	194.6
Retail Exp.	55.8	55.9	57.2	61.1	59.5	-	64.2	-	-	-

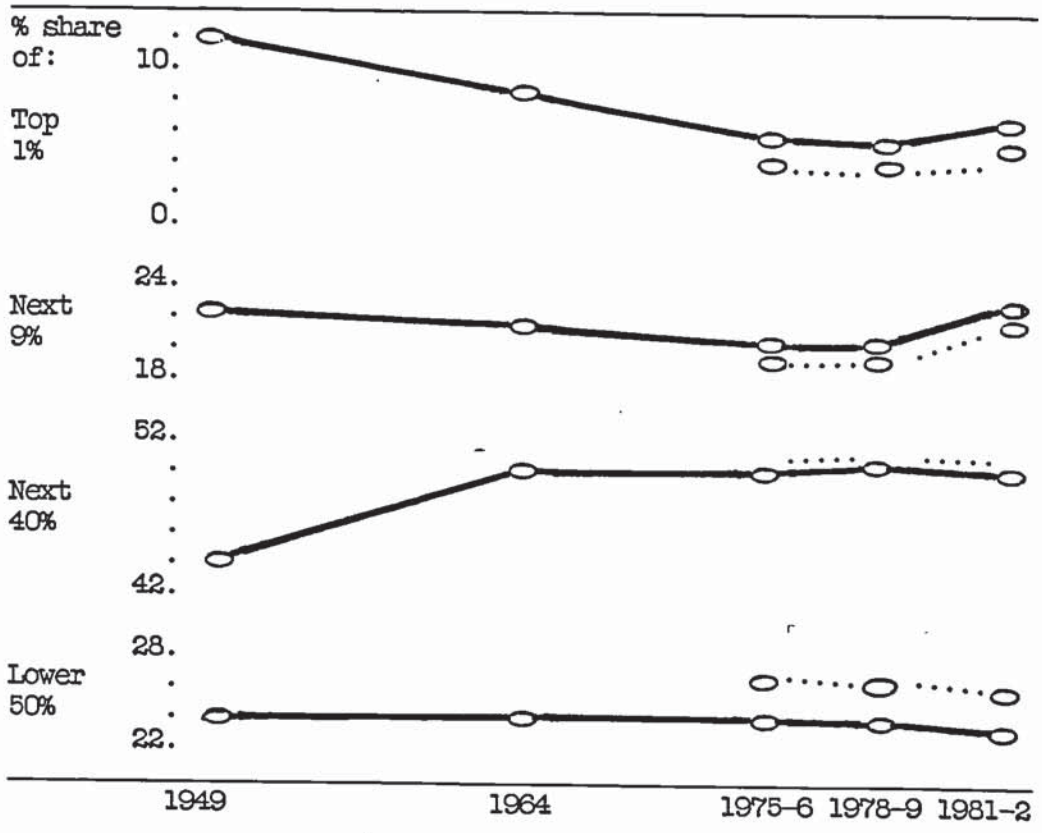
1984* Sales Values are at current prices
All other values are at 1980 prices.

Source: Social Trends 1976-86
SDA25 1976-80
SDO25 1982

costs. Expenditure on retailing increased in real terms by 15% to £78,000M over the same period (see Fig.2.3). The smaller proportion of consumer expenditure devoted to retailing reflects in the main part the relatively low inflation on many retail goods and the tendency towards smaller households (Social Trends, 1986)). While many retail products are less expensive in real terms than previously, other items such as housing and fuel have been subject to an increase (see Section 2.2). The trend to smaller households also causes an increase in per capita expenditure on these items (Hedderwick et al 1979). In general, increases in retail expenditure tend to encourage the sales of luxury items such as consumer durables while sales of essentials such as most food items tend to remain fairly static.

Fig. 2.4 shows the trends in the distribution of income between different income groups. Between 1949 and 1979 their was a large shift in the proportion of income enjoyed by the different income groups. This shift favoured the 40% of the population with earnings just above the median while those in the upper 10 percentile (especially the top 1%) took a reduced share. The share of the lower 50% of earners remained fairly static. The result of this is that those in the favoured group enjoyed an even greater increase in incomes than that which has been identified for the population as a whole. Since 1979 this trend has been reversed; income shares (especially after-tax) have shifted dramatically in favour of the upper 10% of earners at the expense of the other groups. As yet this shift has not been sufficient to entirely reverse the previous position. Redistribution of income away from higher earners undoubtedly has the effect of increasing the

FIG. 2.4 U.K. Income Distribution 1949–1982: Income Shares of Selected Quantile Groups.



——— Income before tax

····· Income after tax

Source: Social Trends 1985.

opportunities for mass marketing of consumer durables and other luxury items. In this respect it acts to magnify any effects due to general increases in GDP.

The longstanding trend of population movements away from rural areas (since the industrial revolution) has been complemented and, to some extent counteracted, by a trend away from traditional inner city areas into outlying districts. Such districts, which initially retain the character of villages, ultimately become absorbed into nearby conmurbations (Smith 1971). In such places demand for retail facilities outstrips the capacity of the original retail provision and this encourages the development of new shopping centres.

The most significant factor affecting mobility is car ownership. Between 1961 and 1984 the percentage of households having access to at least 1 car increased from 33% to 62%, those having access to more than 1 car increased from 3% to 17% over the same period (Social Trends 1986). Access to a car tends to reduce dependence upon local shops and delivery and to encourage visits to more distant sites especially those which enjoy good road links.

Ownership of facilities which permit the storage of perishable items over extended periods affects retailing by permitting these items to be purchased less frequently. In later chapters it is argued that this encourages the use of more distant outlets where price savings may be made especially on bulk purchases. In 1983 ownership of refrigerators stood at 94% of households compared to 78% a decade earlier, ownership of freezers increased to 57% over the same period. Possession of these

relatively sophisticated storage facilities tends to permit less frequent purchasing of perishable foodstuffs and thus reduce dependence on local shopping provision.

The most significant changes in employment patterns concern the number of women in work and the proportion of unemployed among the workforce. The proportion of women in the economically active population rose from 32.5% in 1961 to 38.1% in 1981. There is some evidence moreover that married women form a large proportion of this increase (Hedderwick et al 1979). Because women (especially married women) have traditionally performed many shopping activities, especially the purchasing of groceries and provisions, the effect of the above changes on retailing is to reduce the time available both for shopping and the preparation of food This tends to increase the popularity of weekly or fortnightly (rather than daily) shopping and of extended shopping hours. It also tends to increase demand for ready prepared foods.

Unemployment has risen from less than 500,000 in 1961 to between 3 and 4 million today (uncertainty arises owing to the lack of precise comparability between different sets of official figures). The effect of this, at a time of generally rising incomes, has been to create an increasingly large underbody of economically underpriviliged and it is estimated that around 16 million people may be living in "poverty" (The Guardian, July 26th 1986). The effect of this change is to increase the number of people seeking part-time work in retailing, while creating special marketing opportunities for discount operations which cater for impecunious consumers with low mobility.

Social and cultural attitudes have altered in a number of

ways, often these changes have come about through alterations in perception as a result of retailing activities themselves. Consumers are almost certainly more price conscious today than they were twenty-five years ago. The situation has arisen rather as a result of greater heterogeneity of pricing within the shopping environment than to any external educative process. The influx of commonwealth citizens into the the U.K. has also affected retailing mainly because of the special products that these consumers require. This tends to increase the variety of retailing in certain geographic areas.

The growth in T.V ownership and magazine sales may have shifted consumer attitudes towards advertising in the post-war years. Today consumers expect and even demand to be persuaded rather than simply informed about new products and services; messages in such media may now possess considerable power to attract customers to a shop. The findings of the present study would appear to support such a conclusion.

2.1.5 Conclusion

The present section has detailed a large number of external factors which have been identified as having made a major impact on retailing in recent years or which are likely to do so in the immediate future. The following section details the main changes in retailing which these external influences have brought about.

TABLE 2.1 Summary of Changes in External Causal Factors Affecting Retailing.

External Factor	Nature of Change
Financial & other markets:	
Property Values	Real rise
Interest rates	+ve in 60's, -ve in 70's, +ve in 80's
Legal Restraints:	
Planners attitudes	Hardening against out of town developments
RPM	Abandonment of minimum price controls
Credit restrictions	Less effective.
Company taxation	Stock appreciation relief introduced in 70's
VAT	Introduced.
Shop hours	No change to date, but likely
Road building	Large increase
Technological Change:	
Building costs	Reduced due to prefabrication
Food preservation	Chilling & irradiation introduced
Data transmission, storage & analysis	Wider availability, falling costs.
Automation.	Wider applications
Consumer:	
GDP/Consumer expenditure	Large increase
Population	Small increase
Household size	Increase
Retail expenditure	Small increase in real terms
Income distribution	More equable
Domicile	Shift away from inner cities to suburbia
Access to private car	Increase
Ownership of fridge	Small increase
Ownership of freezer	Large increase
Women at work	Increase
Cultural attitudes	Increase in price/media consciousness

2.2 Changes in Retailing

This section examines the changes in retailing and consumer distribution which have occurred in the U.K. over the past 25 years and some likely future developments are suggested. A great deal of attention is paid to changes in marketing strategies as well as to important issues relating to organisational structure and operational matters both within retailing itself and in consumer distribution channels. The changes considered are classified into the following categories: organisational integration, shop size, location, technology in operations, employment, product range, advertising, marketing research, display, personal service, pricing and payment systems. The changes outlined have occurred both in reponse to the external factors already outlined as well as being interdependent to some degree; attention is drawn to these antecedents in the course the discussion.

2.2.1 Organisational Integration

Integration is the process by which independent entities combine together. It may take the form of ownership, contract or voluntary co-operation. It may be horizontal, in the sense that it involves firms at the same level of the distribution system or it may be vertical when members of the same channel are involved. The most significant change in retailing in the recent past has been the increase in horizontal integration in retailing. This has come about as a result of takeovers, mergers and organic growth and has resulted in an increase in the market share of large retail

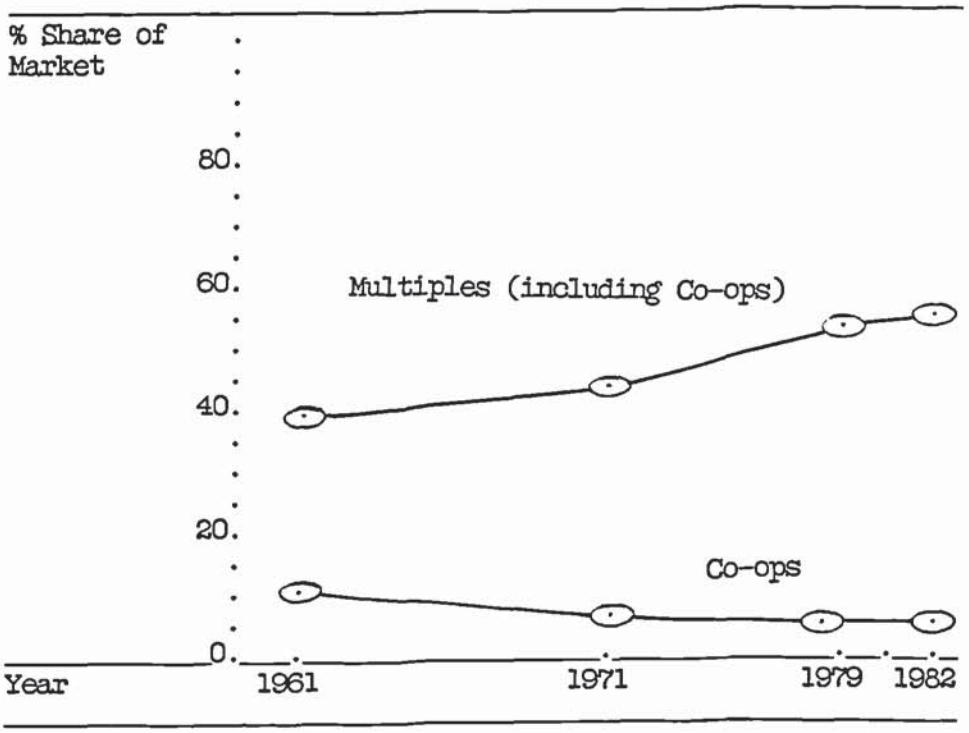
companies. Fig. 2.5 details the market share of multiples (organisations operating 10 or more outlets); this grew from 38.6% of all retail sales in 1961 to 56% in 1982. The market share of Co-ops (classed as a multiple) is also illustrated; this fell from 11.1% to 5.8% over the period so that the gains made by conventionally-owned multiple retailers are even greater than is indicated. Multiple growth has not occurred to the same extent throughout the retail sector. Most affected is the trade in grocery and provisions in which multiple share now stands at 75%. In other products such as antiques penetration is as little as 2.5% (see Fig. 2.6).

In recent years the integrative process has manifested itself in a number of spectacular mergers and takeovers involving companies with large retailing interests. Most notable are those between Burtons and Debenhams, BHS and Habitat/Mothercare.

Concurrent with the rise in importance of large organisations has been a shrinkage in the independent sector (organisations operating less than 10 outlets). These firms have suffered both a loss of market share to multiples and a loss in terms of the real value of sales, between 1961 and 1982 the latter fell by approximately 17% to £30,700M.

A number of factors are responsible for bringing about the changes listed above. Hedderwick et al (1979) considered that the increase in property values was largely responsible since they have enabled retail companies holding such assets to obtain finance for expansion, even in the face of a poor trading performance. The method adopted for the calculation of Stock Appreciation Relief has also favoured large retail companies. Other factors are economies

FIG. 2.5 Market Share of Multiples and Co-ops 1961-82



	1961	1971	1979	1980	1982
% Multiple share	38.6	43.5	54.0	54.6	56.0
% Co-op share	11.1	7.0	6.5	6.6	5.8

Source: SDA25 1976-82
SDO25 1986
Census of Distribution 1961

FIG. 2.6 Multiple Penetration in Selected Product Markets

Source: SDO25 1984

of scale in operational matters such as administration, management expertise, purchasing, training and the application of technology, economies of scale in marketing such as market research advertising and the power that market share gives to dominate a channel (and thereby force rationlisation and possibly put pressure on the margins of other channel members).

Another scale-related source of economy arises from the operation of large retail shops (see later section for details of these economies). Because multiple retailers enjoy superior access to resources and therefore have the ability to absorb increased risk they have tended to be at the forefront in the development of this type of unit. In general, multiple operated shops have five times the turnover and four times as many employees as independents (SDO 25, 1983)

Where growth is by acquisition this may be motivated by the potential for obtaining property assets especially in cases where these may be obtained at a discount on market price or other suitable sites are not available due to planning restrictions. Finally it has been suggested that postwar redevelopment removed many small retail sites and that this has been a further factor mitigating against the independent retailer (Hedderwick 1979, Smith & Gray 1972).

Vertical integration has also increased over the period, both by ownership and other means. Earlier it was noted that large retailing companies are able to exercise a dominant influence over a particular channel. Channel captaincy tends to go hand in hand with concentration. The shift of dominance from wholesaler channel members to manufacturers earlier this century is well-documented

(Mallen 1964) and reflects the increasing concentration in the ownership and control of manufacturing capacity during that period. Subsequently a shift in power towards the retailer has gone hand in hand with the development of larger retail organisations. At present all three types of channel captaincy may be found. Channels for products such as newspapers and magazines are probably dominated by wholesalers, since both retailing and manufacturing are relatively fragmented. Other markets such as that for confectionery remain dominated by the manufacturers who maintain this position by strong branding (again retailing in this area is fragmented). Other markets are arguably controlled by retailers, this category includes channels for many grocery products and other markets in which manufacturer brands are not strong.

In recognition of the importance of channel control many retailers today operate their own in-house distribution systems. Clearly, however, it is possible to exercise control without taking on the burden of ownership. In the case of Marks and Spencer it appears that its domination of the channel actually goes so far as to its specifying not only product design but manufacturing process and employment conditions even though it has no ownership stake in the firms concerned (Goldsmith and Clutterbuck 1985:92). A recent proposal of this company to contract out its distribution may be a further manifestation of the same approach.

Vertical integration by manufacturers and wholesalers may take the form of ownership but is more commonly of a contractual nature. Most important in this respect is the growth of franchising and voluntary group wholesaling. Franchises may be granted by either manufacturers or wholesalers, they take the form of a

contract between parties; the franchiser may supply products, training, equipment and possibly the rights to trade under a recognisable name. The franchisee meets various charges for these services in addition to other business costs (rent, wages etc.). It may be a requirement that the franchisee operates within a given set of rules relating to pricing and standard of service.

The franchising system has shown considerable growth in recent years and well-known chains such as Body Shop and Benetton operate on this basis. The advantage of franchising for the manufacturer or wholesaler is that it is possible to develop what is effectively a retail chain without the requirement of the large capital outlay and attendant risks that would normally be involved. For the franchisee, a measure of independence (this is determined by the rigidity of the conditions imposed by the franchisor), and the opportunity to profit from a successful business is combined with some of the advantages of belonging to a large chain. These latter arise particularly in respect of advertising, public relations and promotional material.

Voluntary groups are ostensibly an attempt to assist small retail organisations by providing a means by which they may co-operate to mutual advantage while retaining their independent status. The advantages to be gained are economies of scale in purchasing, promotion and display. The effectiveness of voluntary groups is limited by the large cost penalties connected with small shop rather than small organisation size, these arise particularly with regard to delivery (Thorpe, Kirby and Thomson 1972). In practice voluntary groups tend to be run by wholesalers. Originating in Europe about 40 years ago (Spar in the Netherlands)

they were first introduced to Britain 25 years ago and by 1979 their membership stood at 3,000 (Hillier Parker 1979). Voluntary groups operate mainly in the grocery trade where 27% of shops accounting for 41% of turnover are affiliated to such organisations. To some extent the effectiveness of voluntary groups has been undermined by the spread of cash-and-carry warehouses (Kirby 1974A, Livesey & Nagy 1981) even though these are often operated by voluntary group wholesalers. The cash-and-carry system offers goods at lower prices but the purchaser must provide both finance and transportation. In effect these costs are shifted onto the retailer. Kirby suggests that the failure of many retailers to calculate the true cost of using a cash and carry may account for their popularity.

Over the past 20 years there has been a massive increase in the degree of integration in retailing and consumer distribution channels. Dominant among these developments is the concentration of retail market share in the hands of increasingly large companies owning large chains of shops. At the same time independent retailers and Co-operative Societies have diminished in importance both in relative and absolute terms. As a result of their size retailers have become increasingly important in distribution channels often operating their own warehousing and transport. In some cases they also control, either by ownership or other means, the production process itself. Manufacturers and wholesalers have also attempted to increase their control by vertical integration and this is reflected in the growth of franchising, and voluntary

group wholesaling.

2.2.2 Shop Size

The aspect of shop size considered here is that of floorspace. This has been operationalised in terms of gross floorspace, which includes the entire area occupied by the shop, and as trading floorspace which is the area actually used for selling (stock-rooms and areas used for administration are not included). Unfortunately very little information relating directly to floorspace is available and it has been the practice of interested parties to infer the relevant changes from other statistics including turnover, number of shops and employment. Kirby (1974A) inferred an increase in average shop size from a decrease in the number of shops, evidence of the latter being available in reports of the Census of Distribution for 1961 and 1971. While a general trend towards larger shops cannot be disputed, calculations as to its magnitude by the above method do rather depend on floorspace productivity remaining constant and this may not be a safe assumption to make. Dawson and Kirby (1977A) used both turnover and the number of employees to determine size changes. While the former suffers from exactly the same defect as shop numbers, the latter almost certainly leads to an underestimate of changes since it is likely that the spread of self-service techniques has lead to a decrease in employee density.

In spite of the defects noted above it is proposed to utilise a combination of the above methods here. Fig. 2.7 details trends in shop numbers, employees per shop and shop turnover from 1961 to 1982. During this period shop numbers decreased by 35%. If it is

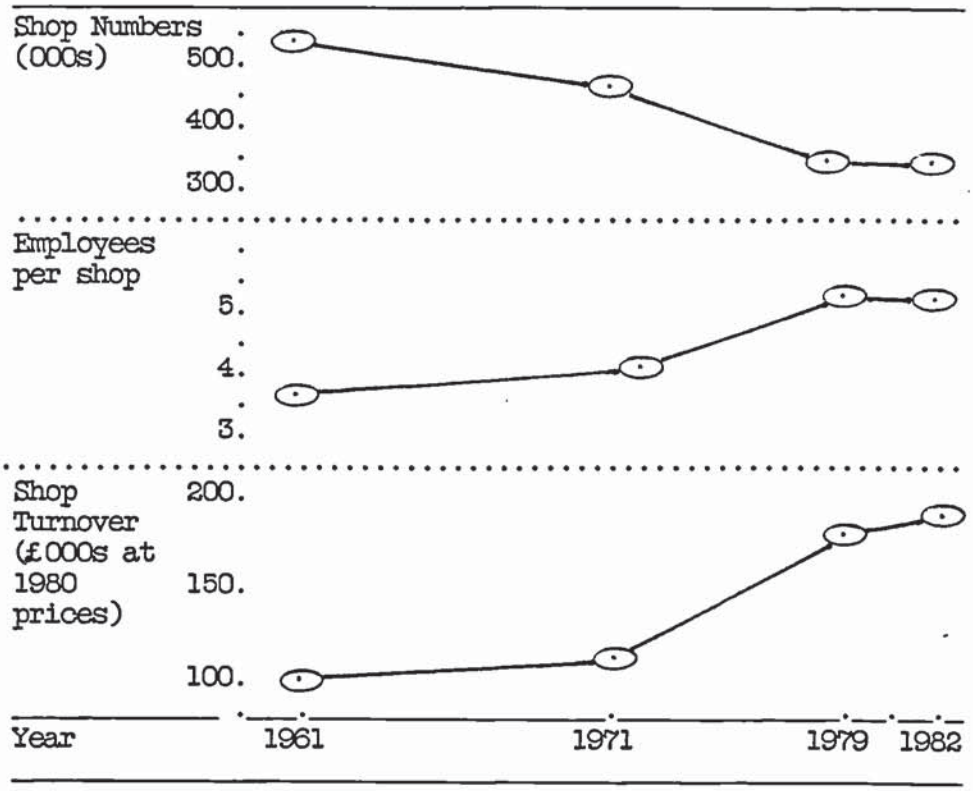
assumed that closures are randomly distributed among size groups, that floorspace productivity was constant over the period, and that real retail volume increased by 20% (estimate) it may be calculated that the size of the average shop rose by 62%.

Over the same period average employees per shop increased by 40% and average reported sales in real terms rose by 80%. Again if it is assumed that there has been no change in either labour or floorspace productivity a substantial increase in average floorspace may be inferred.

While shop size in general appears to have increased changes have also occurred in the number of very large shops. The concept of the superstore and hypermarket was imported originally from the United States. The first hypermarket in Britain was opened in 1966 at West Bridgford in Nottingham, since that time large stores have become a familiar feature of U.K. shopping. The use of conflicting definitions complicates the collation of data on these stores. The Unit for Retail Planning Information, using a definition of hypermarkets as those stores with gross floorspace in excess of 30,000sq. metres (56,000sq. ft.), estimated that there were 42 hypermarkets in operation in 1981. Superstores which they define as between 15,000 and 30,000 square metres in size numbered 188 in 1981 compared with 100 five years previously (Jones 1982).

The main reason for the upward shift in average shop size and in the emergence of of large stores is usually assumed to be the cost savings deriving from economies of scale in shop operation. In terms of delivery a large shop enables a single large vehicle to be fully utilised. Thorpe, Kirby and Thomson (1974) estimated that a single order of 500 packs takes 31% less time to assemble than 5

FIG. 2.7 Shop Numbers, Employees per Shop and Turnover per Shop 1961-82.



	1961	1971	1979	1980	1982
Shop Numbers (000s)	542.3	473.0	351.2	348.6	349.7
Employees per Shop	3.7	4.3	5.4	5.3	5.2
T/O per shop ($000s at 1980 prices	102.9	118.2	174.0	170.7	185.2

Source: Employment data - Employment Gazette 1962-86
Turnover - Social Trends 1986
Shop numbers - SDA25 1976-82
SD025 1986
Census of Distribution 1961

orders of 100 packs, similarly loading and unloading are 47% less time consuming. In terms of physical handling a large shop may also be able to economically utilise labour saving equipment. Where a new building is required a single large unit is considerably cheaper to construct than a number of small ones with the same area. Staff in managerial, sales and support functions may be more efficiently deployed since a minimum of one manager is required regardless of shop size. Such savings are clearly attractive to an organisation which may increase it profitability as a result.

From the consumer's point of view, the attraction of large shops is usually cited as arising from the fact that operators pass on some of the cost savings in the form of lower prices in order to win additional business (Pichaud 1974). It is also often suggested that customers find larger stores attractive owing to the larger range of merchandise which may be stocked. This facilitates what is termed "one stop shopping"; a concept whose attraction may derive from the limitations on time which is available for shopping owing to the increased number of women at work. Packard (1957) suggests that shop size may be effective in its own right and cites research which indicates that large self-service shops may lure the consumer into unconstrained buying. Certainly it is possible that large shops are seen as a fertile area of exploration by consumers. The research described in this thesis appears to support this by indicating that in some (but not all) kinds of business large shop size may in itself attract customers. In spite of the rapid growth of hypermarkets it seems likely this would have been even more dramatic were it not for the activities of planners who have resisted the development of very large stores. It seems likely that

this restriction has lead to an acceleration of development of shops in the 10,000 to 25,000 sq.ft. size range.

2.2.3 Location

In this section it is proposed to consider changes in both geographic and temporal location; that is in shop sites and opening hours.

The major geographic change has been a shift from so-called "local shopping". Most customers now travel further for most of their shopping while shops tend to draw trade from a wider geographic area. This has tended to the benefit larger centres including city and large town centres but has been particularly to the advantage of suburban centres and so called out-of-town centres.

In general the decrease in shop numbers, noted earlier, automatically implies some locational change. Where many shops are replaced by a single unit most consumers find themselves having to travel further to shop. The situation in rural areas is perhaps an extreme illustration. Kirby (1982) notes that in a 10 year period up to 1979 Gwynedd suffered a 19% reduction in the number of shops, this left 47% of villages without a shop at all. In Dorset 47% of villages are the same position, in addition 12% have only one shop.

The shift from local shopping has undoubtedly benefitted large town and city centres. Post-war redevelopments have led to an availability of larger shop units in these locations. These centres also tend to be the focal point of road and public transport systems and in addition offer a comprehensive range of luxury goods (the demand for which has risen in line with consumer spending).

Unfortunately traditional city centres offer only limited scope for retail expansion, the provision of road access and car parking are also inadequate to cope with the demands of increasing numbers of shoppers wishing to travel by car. Moreover, urban sprawl has meant that increasing numbers of people are located far away from these traditional centres (Birmingham City Council 1973). As a result the expansion of city centres and city centre trade has not been as great as might have been expected; instead trade has been taken up by small to medium-sized centres comprising 50 to 150 shops. These are either small town centres or what were formerly village centres. In 1973 Birmingham City Council estimated that such centres accounted for 22% of the total trade in the city. Such centres are more flexible in terms of their ability to cater for the motor car and in their ability to cope with the floorspace requirements of large modern shops. It has been estimated that it is half as expensive to build a large supermarket in such a location as it is in a traditional town centre (MacLaurin 1983).

Out-of-town, edge-of-town and other off-centre locations are, as the names suggest, places other than traditional shopping centres. They include green-field sites at the very edge of built up areas and old and new industrial estates. Shops may be freestanding or they may form part of a purpose built shopping centre. These locations have been developed in order to take advantage of site availability and cost, provision of car parking and accessibility by road. To a large extent the type of developments have been dictated by planning restrictions. The rejection of the application to build a new regional shopping centre at Haydock Park near Manchester in the early 60's on the

grounds of the damage it would inflict on established centres in the region, has to some extent acted as a precedent so that these developments have tended to be of restricted size and type. By far the majority of such developments are much smaller (under 25,000sq.ft.) and consist of single large shops specialising mainly in groceries, furniture, carpets and DIY. It seems likely that these locations currently account for a large proportion of sales of these goods and together with those outlets in suburban centres have drawn trade in these goods away from city and large town centres resulting in the closure of large numbers of stores at these sites.

Ironically it appears that the development of large out-of-town stores may actually benefit the small local store. Kirby (1976B), for instance, claims that in cases where supermarket retailing is already established it is the the medium sized supermarket rather than the small shop which suffers from a loss of trade when new superstores open in the area. This effect is attributed to a "polarisation" of grocery retailing in which major purchases are made on a weekly or fortnightly basis from a large shop offering discounts while fresh foods and other items, for which an unexpected shortfall occurs, are purchased on a convenience basis. It is argued that as shopping journeys become longer, in order to take advantage of larger and (usually) more distant outlets, the need for "topping-up" becomes greater thus benefiting the local shop. The success of the "convenience-store" in the USA is put forward as evidence of this phenomenon and is suggested as a likely indicator of the future prospects of the local grocery store in the UK.

A second aspect of location relates to the immediate environment of the shop. During the period under consideration many new purpose-built shopping centres have been developed. Hillier Parker (1982) list 467 examples of the larger of these centres (over 50,000sq. ft.) that were developed between 1961 and 1982. In contrast to traditional shopping facilities, which tend to locate along main roadways, these centres are usually pedestrianised and consist of purpose built shop units rather than those which have been converted from other uses. Such developments have occurred in most kinds of shopping centre either as a replacement or an adjunct to existing facilities.

In spite of the failure of many attempts to change the law on shop hours, opening hours have undergone a number of changes during the period. Most notable is the extension of trading beyond the working day and into the evening by some multiple organisations. Although it has been the practice of many small shops, especially in inner city areas, to stay open late in the evening, multiple chains in most kinds of business have tended to restrict their opening to the working day. Initially a change in this practice was pioneered by supermarkets which stayed open late on certain days in order to take advantage of restrictions on the time during which a car might be available (these typically being used for travel to work during the day). Latterly this approach has been used by other types of retailers and even used as part of campaigns to increase trade in city centres. Similar considerations apply to bank holiday opening which is also increasing in popularity among traders. A second change is the increase in Sunday opening. A limited number of goods may legally be sold on Sunday mornings (i.e. newspapers

and some food) but except at certain holiday resorts Sunday afternoon trading is prohibited. Many traders clearly flout these restrictions. A large number of traders ranging from market stallholders to large furniture and DIY superstores operate in defiance of the law. Their position is made easier by the lack of enforcement in some areas of the country although there is evidence that some local authorities (in whose responsibility enforcement lies) may be tightening up in this respect (Guardian October 2 1986). Some firms may regard the fairly modest fines which are imposed simply as an additional (and affordable) business cost.

Sunday and evening opening offer an additional opportunity for consumers to make purchases and many people find this convenient. In addition it may be that, in the case of comparison goods, consumers regard shopping as a pleasing form of leisure activity and a source of entertainment in its own right, perhaps comparable to visiting a zoo or stately home (Institute of Fiscal Studies 1984). The growth in the proportion of non-food sales (see later section) may contribute to this tendency. In addition, the greater geographical dispersion of outlets probably makes search behaviour more time consuming than if such outlets were concentrated in a single centre. For the retailer Sunday opening clearly offers the opportunity to gain a competitive advantage over other shops which remain closed. Alternatively a retailer may feel that to remain closed will result in loss of market share to those who do open.

For the future it seems likely that the trend towards longer opening hours will continue, perhaps encouraged by changes in the law. Such trends seem likely to act to the detriment of small

retailers who will not only lose the competitive advantage they currently enjoy (illicitly), but also because they are less flexible in terms of manning and will suffer a greater cost disadvantage than larger shops.

2.2.4 Technology in Operations

Technology has many applications in retailing. The main areas of concern are in warehousing and materials handling, the gathering of information for market research and stock control purposes and finally in the automation of checkouts payment systems.

In warehousing, automatic systems can reduce the manpower required for picking and loading of consignments. These systems may use track-guided unmanned fork-lift trucks which operate with computerised stock control systems. At present such systems do not appear to be widely operated. Capital costs are large and the efficient operation may require regional capacities beyond those of even the largest retailers. Such considerations are perhaps behind the decision of firms like Marks and Spencer who have chosen to contract out this formerly in-house function rather than introducing an automated system themselves.

Another change in distribution is the increasing application of freezing and, more recently, of chilling of fresh foods as a means of preservation. Both these methods have affected distribution on account of the higher degree of sophistication required in the equipment required (cold stores, chill stores, freezer and constant temperature vehicles). These methods have been introduced both to cut down wastage in perishable items during the distribution process and also to cater for the requirement of less

frequent purchasing by consumers. Again it is likely that economies of scale apply and that the capital costs of an efficient system may be large.

The period under consideration has seen large steps forward in computer technologies and these have wide applications in retailing and distribution. The warehousing systems described above are usually applied in conjunction with computerised systems which improve the efficiency of operations such as warehouse location, ordering and transport logistics (Whimster 1981). Such systems lower costs in distribution by the mathematical identification of optimum routes and load sizes. These issues became more important subsequent to the significant rise in fuel costs in the mid 1970's. The computer has also had considerable impact on marketing research. Computer methods allow much more sophisticated analysis to be carried out than was previously possible. The main applications in retailing include analysis of current customer profiles (in order to identify additional needs or suitable advertising and display methods), the identification of unsatisfied markets and the identification and quantification of factors affecting sales (Breheny 1983). Although it is difficult to assess the precise extent it seems likely that the use of such methods is widespread especially among the larger multiple retail firms (Davies 1973).

A major area of technological innovation is at the checkout itself. Although the early mechanical type of cash register has not entirely disappeared these have largely been replaced by electromechanical types. The mid 1970's witnessed the introduction

of wholly electronic versions (known by the acronym EPOS or Electronic Point of Sale equipment) which may be linked to central computer databanks. The first U.K. trials of such systems took place in 1982 and sales of suitable equipment have shown considerable increases since 1984 (Euromonitor, 1983).

Allied to the introduction of computer-linked sales terminals is electronic bar-code scanning. This permits information (not only on price but also on the precise nature of the goods involved) to be gathered simply by passing the item in front of a laser scanning device. Although almost all products from major manufacturers carry bar-codes and machines exist to print such codes for other items such as fresh produce, as yet scanning is not a general feature of retailing even where the larger chains are concerned. Prior to 1980 there were only two stores in the U.K. which operated scanning, by December 1981 this had risen to 31 and stood at 165 in December 1984. Clearly the system has yet to make a major impact on U.K. retailing although considerable further growth seems likely in the near future.

Scanning permits the use of less skilful staff (no possibility of incorrectly entering a price), while costs may additionally be reduced because it permits less time to be spent servicing each customer and staffing levels may be reduced. The instantaneous information which the system gives as to sales of individual products may be used as the basis for stock-control and may influence marketing strategies.

Electronic funds transfer at the point of sale (EFTPOS) involves directly debiting a customers account at a shop by means of a system somewhat analogous to that used by banks for automatic

cash dispensing. Although suitable technology exists the system has not yet been implemented in the UK. The main problem appears to lie in the failure to reach agreement on who should pay for the installation and running costs of the system. It seems likely however that this system will eventually be introduced at least in some shops.

Another technologically-based innovation is what is termed "teleshopping". This is really an extension of mail or telephone ordering and involves customers searching through catalogues displayed on television screens. In the full system ordering and debiting are fully automated perhaps utilising a consumers own micro-computer as a terminal. Pilot studies carried out in the US indicate a good response to this system, 83% of a trial sample rated the system favourably while 63% made purchases. In the U.K. a number of schemes are in operation. An early experiment in Gateshead involved 450 disabled persons and was subsidised by the local council. Services involved both information and retailing including the local Tesco. Viewtel in Birmingham had 1,000 clients in 1983 (Euromonitor 1983) and included shopping at Carrefour among the services offered. The most advanced scheme is Homelink which is operated in Nottingham by a local building society. This uses British Telecom's Prestel system which is linked to the client's own home micro-computer. Services include grocery shopping and the booking of holidays. The cost is £10 p.a. to the Society's investors. After seeing a promotional video 65% of a sample of Nottingham residents expressed an interest in joining the scheme (Retail and Distribution Management March/April 1983). The client base is unrecorded.

Although such systems may have application in arranging financial transactions, making reservations etc. it seems likely that their application in mainstream retailing must be strictly limited. The concept is directly in conflict with recent trends in retailing; mail order selling has decreased after a boom in the post war years while the expansion of multiples is often attributed to offering less service rather than more. Delivery of grocery purchases, once widespread, is now virtually non-existent. It seems unlikely that the mere existence of convenient technology for ordering goods will be sufficient to reverse these trends to any great extent and the use of these systems for retailing seems likely to be restricted to the wealthy and perhaps the disabled (if part of the costs were to be met out of public funds).

The innovations discussed in this section are mainly concerned with cutting costs; such savings may either be used to lower prices, in order to gain a competitive edge, or they may be used to increase profitability. The current emphasis on lowering costs, by the introduction of improved techniques, probably reflects the fact that, particularly in food, the expansion of market share by multiples has virtually reached saturation point. Further expansion of individual companies must be achieved at the expense of rival multiples rather than the less efficient independent sector.

It is notable that all the innovations mentioned appear to offer the largest gains for the large retailer and some cases may only be viable when applied in large shop or firm.

2.2.5 Employment

Trends in retail employment are detailed in Fig. 2.8; between 1961 and 1982 the number of persons engaged in retailing fell by 21% to 2.19 million. This figure includes both employed and self-employed persons. The trend in employees (especially part-time) runs in the opposite direction. Employment in retailing showed a decrease from 2 million in 1961 to 1.8 million in twenty years later, subsequently employment has increased to 2.15 million. Over the period part-time employment increased by .36 million (75%). It appears that both self-employment and full-time employment in retailing have suffered considerable decrease in favour of part-time employees who now constitute over a third of persons engaged.

These changes have arisen mainly as a result of the increasing tendency for shops to be part of large organisations, the decrease in the number of shops, the increase in average real turnover per shop and the shift towards self-service methods. The decrease in market share accounted for by independent traders clearly reduces the opportunities for self-employment. Larger or busier shops may be more flexible in terms of staffing which may be utilised more efficiently (the minimum number of staff is one no matter how small the shop or how low its level of trade). Many large shops use part-time staff to cater for busy periods while employing fewer at other times. Self-service methods reduce the requirement for sales staff because many of the functions they previously carried out are undertaken by the customer.

Trends in cultural attitudes towards women at work may have

FIG. 2.8 Employment in Retailing 1961-85

Source: Employment Gazette 1961-86

increased the availability of persons who are willing to work on a part-time basis. Since the remuneration from part-time work is usually insufficent to meet the needs of an individual, suitable employees are usually seeking to supplement income from other sources. Additionally it is not uncommon in times of high unemployment for individuals to take on a number of part-time jobs if full-time work is unavaliable.

2.2.6 Product Range

Changes in product range include the introduction of new products, the wider availability and supply of traditional products and changes in product mixes in individual shops.

A large number of products which are widely purchased today did not exist in 1961 These include technologically-based products, such as computers and videos, and convenience-based products such as foodstuffs intended to appeal to those consumers with little time available for food preparation. While the former have developed as a result of technological advances and the increase in consumer spending power, the increase in the proportion of married women at work has clearly influenced the latter. In addition, it may be that convenience products are to some extent an attempt by manufacturers of foodstuffs to take advantage of increased prosperity among consumers. Food expenditure tends to be fairly inelastic in the face of income changes, however, highly processed foods are considerably more expensive than their unprocessed equivalents and manufacturers and retailers may hope to increase food expenditure by making such products available.

Another class of products of interest here are those which

were in existence at the beginning of the period under consideration but appealed only to a specialist market. Today many such products are widely purchased and easily avaliable. This category includes; freezers and freezer foods, fast foods (such as hamburgers), ethnic foods (curry), TV radio and Hi-fi, DIY, and fashion clothing. Again such products have increased in demand mainly on account of increased prosperity in post-war years.

Fig. 2.9 details sales volumes of three major categories of products. It may be seen that while the volume of food sales has shown only a small increase (11%) since 1961, sales of clothing and durable goods have increased massively and now approach twice their previous sales volumes.

Alongside the product changes outlined above there have been considerable changes in product mix within the shops themselves. Two conflicting trends are evident. The first of these is a trend towards increasingly mixed merchandising within single outlets. Although shops with extremely wide product ranges have a long history, from the small village general store to department stores such as Harrods, in general most retailers have specialised to some extent. A notable recent trend has been for large multiple chains to become increasingly similar through diversification into new lines. Keynote Publications Ltd (1982), noted the increasing similarity for W.H. Smith (originally a newsagent), Boots (chemist), Littlewoods (clothing), C&A (womens wear) and Marks and Spencer (clothing) to become increasingly alike and to mimic the operation of Woolworths. The tendency for supermarkets such as Tesco to enter non-food retailing and latterly to introduce fresh foods and in-house bakeries is further evidence of this trend.

FIG. 2.9 Sales Volumes for Selected Product Groups 1961-84

Source: Social Trends 1976-86

Perhaps the extreme example of mixed retailing is the hypermarket. These large stores (in excess of 25,000 sq.ft. in size) attempt to satisfy almost the entire range of retail requirements in a single shop. Goods typically available range from food, through clothing and white goods, to DIY. A recent development has even added motor cars to this list. Mixed (or scrambled) merchandising is not confined either to large stores or to large organisations. Many newsagents have diversified into groceries, pharmaceuticals and books while many petrol stations sell groceries alongside motor-spares.

In general the rationale of mixed merchandising is that the wider the range of goods on sale the more likely it is that a customer will make a purchase. In the case of supermarkets, the diversification into non-foods was made as a result of the higher margins to be obtained in these goods. In many cases diversification may be evidence of desperation on the part of retailers. The hypermarket facilitates what is termed "one-stop-shopping" and it is certainly the case that for some categories of purchase a consumer may prefer not to have to visit several shops. A study of hypermarkets noted that while many consumers showed considerable loyalty to a given shop for their food purchases this was not the case for durables. The inclusion of Marks and Spencer in the above list is perhaps surprising in view of the fact that the success of this company was at one time believed to be derived from its having a clearly defined image in terms of the products available (Ornstein 1976), The problems of Woolworth (which having been sold off by its American parent has now closed down many of its outlets) is an extreme example of the fact that mixed retailing

is not always a successful strategy. The experience of many supermarket chains in their attempts to increase profitability by adding non-food lines has been similar and many such firms have abandoned plans for further expansion in these areas (Retail and Distribution Management Jan/Feb 1983). British Home Store's recent announcement of a withdrawal from food retailing provides further evidence that the retailing expertise required may vary considerably according to the product.

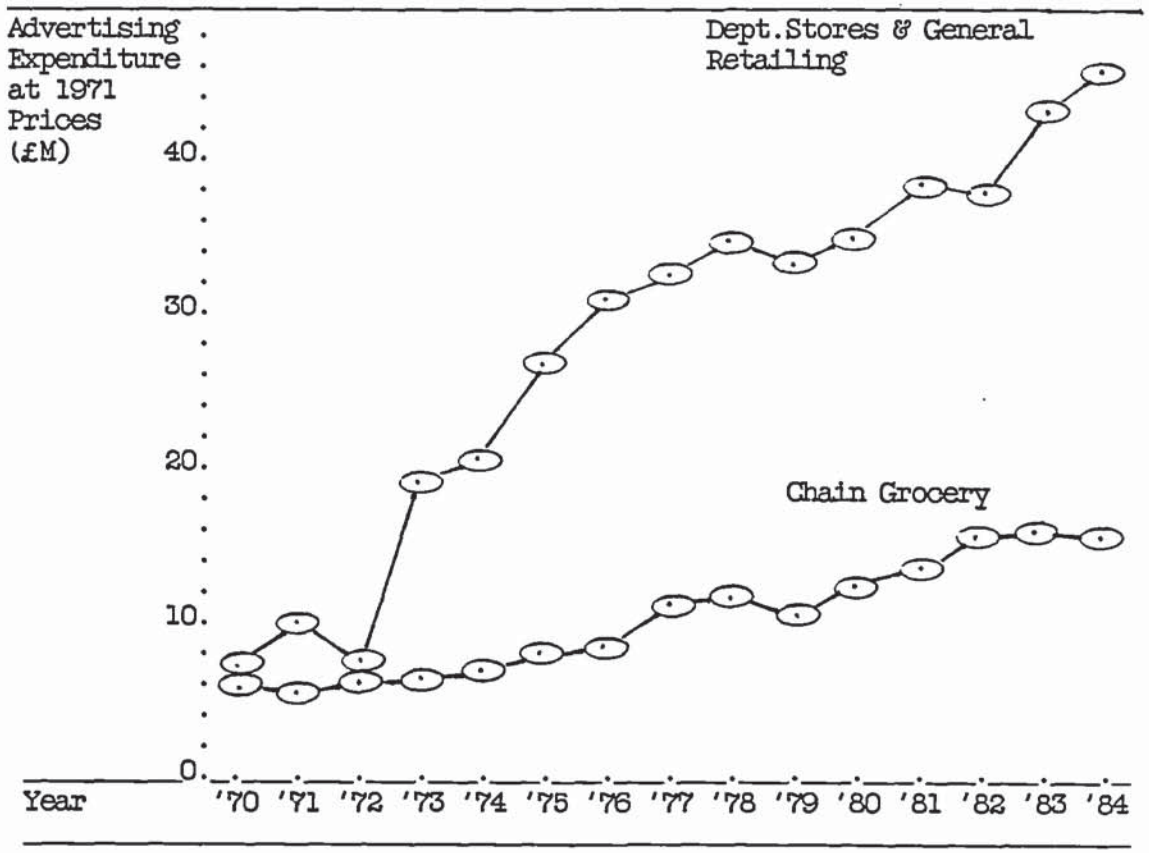
Concurrent with the rise of mixed retailing there is some evidence of a trend to increasing specialisation although to what extent these countervailing trends are connected is not entirely clear. The most striking examples of this trend are freezer centres and fashion-wear outlets. The former have pioneered a new specialism in an area of retailing in which scrambled merchandising has become almost universal. Some fashion retailers have attempted very precise targetting of markets. Burton group, for instance, subdivide menswear retailing to an extent that adjacent shops selling largely similar lines trade under different names and apparently convey an entirely different image to the consumer.

2.2.7 Advertising and Display

Media advertising (in Newspapers, TV, magazines etc.) is not widely practised in retailing. Most firms simply do not advertise in this way but rely on physical presence and word-of-mouth. Such practices are not confined to small retailers and even giants such as Marks and Spencer do not advertise to any great extent. Nevertheless advertising expenditure has shown considerable growth in real terms in recent years. Fig 2.9 illustrates this point with a breakdown

into expenditure by chain grocery multiples and other retailers. Advertising expenditure by chain grocers increased by 275% between 1970 and 1984, that by other retailers increased by nearly seven times over the same period. Advertising is used either to inform or to create an image in the consumers mind which is more positive than that which would be formed on the basis of the facts alone. Retailers such as Marks and Spencer may feel that customers are sufficiently aware of their product range and trading policies and have therefore eschewed advertising to a large extent, restricting such campaigns to new store openings (Ornstein 1976)). A large increase in advertising by food chains coincided with the so-called price war initiated by Tesco in the late 1970's, this was clearly intended to gain market share at the expense of other multiples. In these cases we may view the expenditure as an attempt primarily to inform but also to create an image of competitiveness (on price) in the consumer's mind. The rather larger growth in expenditure by other types of retailer (mainly non-food) undoubtedly reflects the larger potential gains to be made at a time of increasing consumer expenditure (food expenditure being largely inelastic). Advertising expenditure by "department stores and general retailers" increased by nearly 500% between 1970 and 1984. Again stores seek to inform about products and prices and probably to even greater extent to lure the customer by the promise of excitement. The latter issue clearly takes on greater importance where shopping is viewed as a leisure activity by an increasing proportion of the population (Institute of Fiscal Studies 1983). In addition, it is possible that the increasing geographical dispersion pattern of many outlets in furniture, DIY and electrical goods means that a consumer has

FIG. 2.10 Real Advertising Expenditure 1970-84



Source:

Advertising Expenditure: Media Expenditure Analysis Ltd.(MEAL) Quarterly Reports 1970-84.
Correction for Inflation: Social Trends 1972-86

much greater difficulty in making comparisons by the conventional method of making personal visits to suitable outlets. Price and product lists published in newspapers offer a more convenient way to choose a suitable outlet. The increasing role played by television in popular culture has undoubtedly given advertisements in this medium particular positive impact.

Branding has traditionally been used by manufacturers to identify their products and to assure the customer of the quality of purchases. When coupled with media advertising campaigns it has been possible for manufacturers to ensure the passage of these goods into distribution channels by creating advance consumer demand which "pulls" the product through the channel (McCarthy 1978:325). The retailer benefits from this because the consumer puts his/her faith in product rather than seller. Many branded products are heavily advertised and this means that part of the retailer's selling function has been done in advance. The disadvantage of this method for the retailer is that s/he is in effect contributing (through the premium price paid for the product) for the creation of a general demand for the product. This both increases the power of the manufacturer and is of equal benefit to competitors who stock the product. The growth of larger retailers intent on price-cutting and seeking large discounts has led to a dissatisfaction with manufacturer brands. Manufacturers with strong brands are able to resist pressure even from large retailers. Large retailers have reacted to this situation by introducing so-called own brands, these are promoted as either cheaper equivalents or as being of superior quality. Some firms, such as Marks and Spencer, rely entirely on own-brands, many

outlets offer them alongside branded goods. Voluntary group wholesalers have introduced own-brands for sale in affiliated outlets. Davis (1982) notes that in spite of the undoubted success of retailer brands the large majority of the 100 main markets in grocery products remain dominated by manufacturer brands.

The main change in terms of display has been a shift from traditional counter based shop in which items are stacked on shelves behind counters or in stock rooms to the open type of arrangement in which goods are arranged on shelves around the shop in the areas to which the customer has access. This change has come about as a direct result of the trend towards customer self-service or self-selection. It applies in a wide variety of retail types from fruit and vegetables to clothing but it is by no means universal. The absence of the intervening salesperson has also led to a greater emphasis on attractive displays of merchandise that show off products to good effect. Much emphasis is also placed on attractive furnishings and environments. The present conversion of Debenhams department stores to a layout along the lines of small shopping centres (Gallerias) is perhaps an extreme example of the latter. A countervailing trend is evident in the practice of some supermarkets and other discount operations, who in an effort to cut costs operate from what might best be described as a warehouse; rather than being set out on shelves goods are simply placed in the cases or pallets in which they were delivered, unpacking is carried out by the customer.

Window display has also undergone considerable change. The traditional boxed in type of display, has been replaced in many shops by other types which enable customers to see into the

interior of the shop. In clothing shops it is now common for window displays to be an integral part of the shop interior. Supermarkets may use window space as a hoarding on which to post price information while many superstores and hypermarkets do not have windows at all, this probably reflects the familiarity of most customers with the products involved and the lack of passersby in many off-centre locations.

2.2.8 Personal Selling

The recent history of retailing has witnessed the spread of self-service into a greater number of shops in increasingly diverse product areas. Originally pioneered by the co-operative movement during the war (due to staff shortages) this has been largely a postwar phenomenon. In 1947 there were 10 self-service food shops in Britain accounting for 1% of sales, by 1957 this had grown to 3,500 accounting for 10% of sales (Northumberland County Planning Dept. 1963). AC Nielsen and Company (1971) note that by 1970 there were 29,000 such shops accounting for 70% of grocery sales. Although pioneered in larger shops self-service has spread to even the smallest types of grocery shop (Watkin 1979). Self-service has also been applied in other types of retailing including clothing, confectionery-tobacco-news and books. A restricted form of self-service known as "self-selection" involves the customer making a choice from examination of samples, subsequently an assistant is approached who produces the product itself from a stockroom or display case. This method is used in selling items such as shoes, electrical goods and even jewellery. The growth of self-service has usually been viewed in terms of the cost savings available to the

operator. The introduction of selective employment tax (SET) in 1966 and rising wage costs have acted as a spur to this process. The acquiescence of the consumer in this process is usually attributed to cost savings being passed on in the form of lower prices. Ornstein (1976) suggests that consumers favour self-service for the negative reason that shop assistants are often disagreeable. Packard (1957) cites research which suggests that shoppers may go into a sort of a trance in the "Alladin's cave" of a supermarket and purchase more than they would when faced by an assistant. It may be that what Howard (1977) calls "extensive problem solving" (EPS) is less stressful where the customer may examine goods freely without the intervention of sales staff.

Somewhat ironically the present attempts by supermarkets to increase their market share in fresh foods have led to a greater element of assisted service being introduced for products such as fresh meat, fruit, vegetables and bread. It would no doubt be premature to see this as the beginnings of a reversal of past trends in personal selling.

2.2.9 Pricing

Fig. 2.11 illustrates trends in retail pricing for selected categories of goods Between 1961 and 1984 the price of foods rose by 9% in real terms (that is after the overall level of inflation has been taken into account), prices of clothing and durable goods fell by 51% and 43% respectively.

Food prices are largely determined by international prices and agricultural policies aimed to support farm prices. U.K. membership of the EEC has undoubtedly contributed to the small rise

FIG. 2.11 Relative Inflation on Selected Product Groups. Price Changes after the Effects of Inflation are Eliminated.

Source: Social Trends 1986

noted. In general it might be expected that the economies of scale which are available to the large organisations and large shops which are concentrated in this sector might have led to lower rather than higher prices especially in view of the fierce price war between supermarkets since the late 1970's.

The fall in price of clothing and durable goods reflects both a fall in manufacturing costs, due to the growth of mass-markets for luxury products, as well as the lower distribution costs of large organisations and larger shops being passed on to the customer.

A second aspect of pricing is the degree of heterogeneity of price. Prior to 1964 most products were sold at manufacturers recommended prices or higher levels as they were legally obliged to do. This ensured that prices were largely uniform and that any competiton took other forms. Since that time the overall price changes in both food and non-food lines have been accompanied by an increase in the amount of variation in the price of a given item between different shops. Low prices have become available owing to economies of scale which some shops and organisations enjoy, others are forced to charge higher prices and to compete in other ways.

The increase in price heterogeneity has undoubtedly affected consumers attitudes and low prices are no longer automatically equated with inferior goods. Consumers increasingly expect price concessions and this attitude has further increased their effectiveness. The increase in, and success of, "discount" chains such as Comet which offer lower than average prices on branded merchandise and the popularity of special offers is further evidence of such an effect.

A further issue which needs to considered in this section is that of the provision of credit. At the beginning of the period under consideration it is likely that many goods, especially food were purchased on "tick" that is to say that customers made purchases which were paid for later on receipt of wages or some other income (Klingender 1951, Hedderwick et al 1979). Shopkeepers provided this credit at no extra charge and on an informal basis, many of the customers concerned being personal acquaintances. The subsequent rise of real interest rates and the reduction in local shopping have clearly acted to reduce this type of credit although for obvious reasons official figures are not available.

Formal credit usually involves an installment plan of one sort or another, outstanding credit of this type increased by 247% between 1961 and 1984 (Economic Trends 1963, Euromonitor 1985). Several factors have played a part in bringing about this change. Increases in demand for durable goods undoubtedly increase demand for credit owing to the high initial capital outlay which is involved. The removal of restrictions on hire purchase credit in 1982 have also played a part in later years. A recent trend has been for large retailers to launch their own credit card schemes rather than relying on either hire-purchase agreements for individual sales or the acceptance of cards such as Access or Barclaycard. Such schemes offer better terms to the customer while increasing customer loyalty to a single store, they may be administered and underwritten by external financiers.

2.3 Conclusion

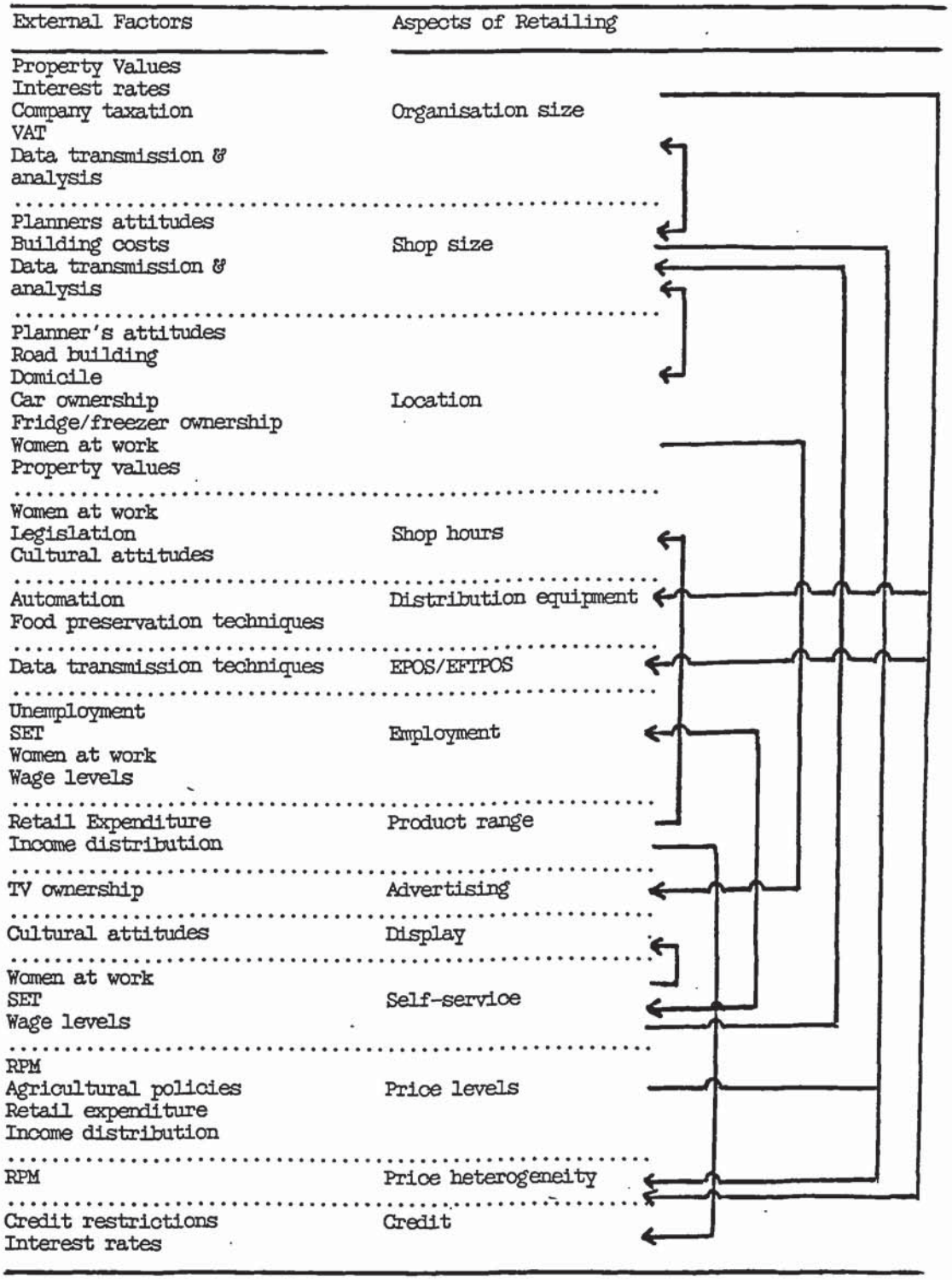
The present chapter outlines major changes in retailing in recent years and the external causal factors have been identified. The main changes in retailing are summarised in Table 2.2. The interlinkages between these changes and external factors are illustrated in Fig.2.12.

A major feature of the changes noted has been the shift from small shops and small organisations towards their larger counterparts. This has largely been due to the ability of these organisations to cater for the changed circumstances of the consumer, their main advantage is economies of scale. Although it seems unlikely that small organisations will further lose ground in mainstrean grocery retailing, in other product areas multiple expansion seems likely to continue. Recent technologically oriented advances such as those concerned with preservation of fresh foods and the implementation of information technologies seem destined to benefit the large firm to a disproportionate extent.

TABLE 2.2 Summary of Changes in Retailing & Distribution 1960-1985

Retail Aspect	Change
Organisation integration	Increase in size of shop chains & market share increasing retail control in channels by ownership and other means.
Shop Size	General increase in shop size esp. in grocery emergence of numbers of very large units.
Location	Decrease in shop numbers esp. of local shops concentration of trade in city centres and especially suburban centres. Emergence of off-centre and edge of town shopping. Increase in evening & sunday opening
Technology in operations	Automation, freezing and chilling increasing in distribution. Computer based technologies introduced at point of sale, affecting stock control and marketing. Not fully exploited.
Employment	Decrease overall increase in part-time working
Product range	New products introduced or more widely avaliable increase in mixed merchandising. Emergence of new retail specialists serving limited needs or target markets.
Advertising & display	Increase in advertising esp. non-food. Increasing importance and sophistication of display.
Personal Selling	Increase in self-service in most types of shop
Pricing	Decrease in real price of non-foods. Increase for foods. Increase in heterogeneity of pricing between shops.
Credit	Increase in credit sales, emergence of retailer credit cards.

FIG. 2.12 Internal and External Interdependencies Affecting Aspects of Retailing and Distribution.



Arrows show intra-retail interdependencies.
External interdependencies are indicated by groupings within the dotted borders.

CHAPTER 3 THEORY AND RESEARCH INTO FACTORS AFFECTING THE SALES OF RETAIL SHOPS

Summary

3.0 The chapter examines existing literature for evidence of factors which affect the sales of individual shops. The relative importance of such influences and how this may vary between different types of retailing is also considered.

3.1 A large number of potentially important influences are identified.

3.2 There is little certainty about the relative importance and quantitative impact of such factors. This may arise as a result of methodological deficiencies in some of the studies involved. Overall there is some evidence that location variables are most influential.

3.3 Variations in the relative importance of these factors, according to the type of retailing involved, most probably reflect the product class of the goods on sale. Lack of published data about a sufficient variety of retail types, lack of standardisation of methods and inconsistencies in results preclude any precise quantification of these effects.

3.4 It is concluded that further empirical work is required in order to meet the objectives of the present investigation.

3.0 Introduction

The previous chapter examined some recent changes in retailing. Many of the developments involved are attributed to the effectiveness of shop attributes such as pricing. It may be that variables such as this are of increasing importance in attracting customers to a shop. The present chapter focusses specifically on empirical evidence and theory relating to factors which affect the sales of individual shops. The objective of the analysis presented is to determine the current state of knowledge relating to these factors and the underlying causal mechanisms involved. Three main questions are addressed:

a) Which variables have been shown (or might reasonably be expected) to affect sales?

b) What evidence exists as to the relative importance of such variables, either in a general sense or with regard to retailing of a particular type?

c) Does the relative importance vary between different types of retailing and, if so, what are the determinant dimensions involved?

These issues represent different levels of sophistication in theoretical terms and act both as a means to assess the nature of current knowledge in practical terms and as a basis for the formulation of suitable hypotheses to be tested in future empirical work.

At each stage the strength of the evidence in support of a

given effect is evaluated with reference to the nature and suitability of the methods employed in the investigation concerned.

3.1 Identification of Factors Affecting Retail Sales

An early step in any systematic approach to problem-solving involves identification of the universe of influence bearing on the issue in question. In the present case the retailer or investigator benefits from an awareness of the full range of variables that might be thought to affect sales in a shop. Such variables are, to a large extent, representative of aspects of the marketing mix and may be classified according to whether they relate to location, product range, pricing and promotion. Other variables are also considered.

3.2.1 Location Variables

Studies of location focus either on shopping centres or individual shops. These may be considered to be separate levels in a hierarchy. At the first level the centre as a whole competes with other centres, at the second level intra-centre competition determines how that trade will be divided up. It is proposed to deal separately with these two issues.

The determination of the trade of a shopping centre has been the subject of some fairly extensive and sophisticated research. The principal concern has been to identify the geographical area from which a given centre draws its customers. This may be converted to sales turnover by making an assessment of the

requirements of the resident population.

Several attempts have been made to determine which features of a centre are important in determining its power to attract. Early work by Christaller (1933) identifies a hierarchy of centres (or "central places") based upon the size of population needed to support different types of shop; higher order centres contain shops that require larger populations to support them. Consequently the higher the position of the centre in the hierarchy the further customers will be willing to travel to make use of the facilities offered. Generally speaking, the wider the range of different types of shop which a centre contains the larger will be the catchment from which it draws its customers. Later theorists have noted that in the case of certain goods, customers appear to be willing to travel simply in order to obtain a range of choice even when a commodity is available locally (Herren et al 1968, Thomson 1971). Berry (1967) sets out a fairly precise definition of what constitutes a particular hierarchical level. This is based on the range of goods available and facilitates estimation of the market area covered.

Reilly (1931) used the size of local population to determine the size of the attraction effect in setting out his "law of retail gravitation" (an attempt to model how trade is divided up between competing centres using a set of concepts borrowed from the physical sciences). Later investigators, using a similar approach, utilise sales (Manchester University 1966), retail floorspace (Huff 1963, EDC 1970), number of employees in retailing (Davies 1970) and the number of shops (Berry 1963). In a study of the potential impact of a proposed regional shopping centre at Haydock Park, near

Manchester, the University of Manchester (1964) used an index based on the number of variety stores, the number of department stores, the number of chain stores and the number of markets to similar effect.

Investigations of factors affecting the trade of individual shops also include assessments of the attractivenesss of the centre in which it is located. Davies (1973) assessed shopping centres in terms of the number of multiples, the number of major competitors and the number of chain branches, these variables were not found to have significant effect on individual shop trade. Chell and Haworth (1983) found that salient influences on the magazine trade of newsagents shops vary markedly according to whether the shop is located in a rural, suburban or town centre.

Non-retail factors determining the attractivenesss of centres are mainly concerned with transportation. Some researchers have measured trade areas in terms of drive times, rather than road or straight line distance, in order to take account of the adequacy (or otherwise) of road systems (Huff 1963, Manchester University 1964). Lee and Kent (1975 and 1977) found that good road access plays an important part in attracting trade to new out-of-town centres. Rogers (1977) found that bus access was also a potentially important influence.

Car parking provision is a major consideration for many shoppers (NCC 1982, Woman Magazine 1983) and some investigators have attempted to include time spent parking in overall journey times (Lewis and Traill 1968).

Retailers studied by Hallsworth (1982B) considered that pedestrianisation could benefit trade.

It is likely that the power of various centre attributes varies according to the characteristics of the local population. Road access and car parking provision have most impact where car-ownership is high, otherwise the bus service may assume greater importance. Similarly the propensity to shop locally may be higher among social groupings with a low degree of mobility.

Social class is usually determined according to occupation. It was originally proposed by Martineau (1958) as an important determinant of shopping patterns. Nader (1969) found that higher social classes spent more than others in regional centres in the USA. Lee and Kent (1975 and 1977) and Hallsworth (1982b) found similar effects relating to new shopping developments in Britain. At the level of the individual shop, Davies (1973) found no significant effect of occupation while Fenwick (1979) found it did have a measurable effect on the trade attracted to branches of building societies.

An alternative to occupation, as a means of classifying populations, is income. Martineau considered this to be inferior to occupation owing to its more tenuous link with attitudes and behaviour. One advantage is that income readily enables classification on an interval scale. Rogers (1977) found no significant effect of this variable on whether or not consumers shopped at a new branch of Sainsburys.

Chell and Haworth (1983) classified customers of newsagents shops by the novel method of measuring the level of sales of quality newspapers; they found this to be associated with magazine sales in rural areas only.

Race may also be an important determinant of shopping

patterns. NCC (1982) found that people of Asian or Caribbean origins showed a high propensity to shop locally. These groups also have special demands relating to product range, hours of opening etc.

The mobility of a population also determines shopping patterns. Hedderwick, Stirling, Grumbar (1979) considered that increases in car-ownership mitigate the effect of distance and favour the high street at the expense of the corner shop. Studies of the impact of hypermarkets and superstores indicate that car-ownership among customers is considerably higher than in the population as whole (Lee and Kent 1975, Lee and Kent 1977, Rogers 1977)

Age may be important owing to lower mobility associated with the old (Guy 1983). In addition the old may be more conservative and continue to patronise corner shops to a greater extent than other age groups. Lee and Kent (1975 and 1977) found that the patrons of new centres in Caerphilly and Brent Cross tended to be predominantly the young middle- aged. Rogers (1974), in a similar study relating to a new branch of Sainburys found no evidence of age-related bias.

Lifestyle is relatively hard to measure and has usually been seen as less useful than other sociodemographic indicators. There has recently been increased interest in this issue however. Darden, Lennon and Darden (1978) found that outshoppers (those who tend to travel to obtain greater choice) are likely to have particular characteristics including a high knowledge of the world, fashion consciousness, cosmopolitan outlook and higher than average mobility.

With respect to the individual shop, there are three main considerations in evaluating its position within a centre; its general accessibility, the nature and quality of competition and its opening times.

Within a single shopping centre there may be large variations in the quality of retail sites. Berry (1967) notes that highly trafficked sites are most sought after, these usually occur at the intersection of streets and this is reflected in the rentals charged for such properties. Davies (1973) measured both the type of street and whether the shop occupied a corner site. Neither of these variables turned out to be significant as predictors of turnover however. Chell and Haworth (1983) measured the nature of retail neighbours to the newsagents they studied. The index they devised scored food shops higher than furniture shops according to preconceived ideas about how trade would be affected. This index was significant as a predictor for rural and suburban shops but not for those in the town centre.

Competition has the potential to affect trade both by its quality and its quantity (Cohen and Applebaum 1960, Guy 1983). The issue is not particularly clearcut however; although additional competition may lead to a smaller share of trade for each existing shop, the attraction of the centre as a whole may be increased. Chell and Haworth (1983) evaluated competitors in terms of their own immediate surroundings and divided this score by the distance from the "target" shop. This variable was found to be significant for rural and suburban shops but not for those in the town centre. Fenwick (1979) measured the number of competing branches in the same centre in a study of building societies but did not find this

to be significant. Similarly, Davies (1973) was unable to find any competition effect.

Many investigators have considered extended opening hours to be an important competitive measure for the small shop (Bechhofer et al 1971, Hollander 1973, Kirby 1976). Chell and Haworth (1983) noted that it was not so much the hours themselves as the opening times which were important in attracting trade to a newsagents shop. They suggested that early opening might be more effective than late opening although they did not find a significant effect on sales. NCC (1982) found that customers claim convenient opening times to be a major reason for choosing a particular shop, Woman Magazine (1983) found that their readers wanted longer and more flexible opening times.

Some measures that relate to individual shops also reflect the attributes of the centre as a whole. The most important of these is pedestrian traffic past a shop, this can be considered to represent the combined effect of the power of the centre to attract trade (in quantitative terms) and the position of the shop relative to traffic flows within the centre. Chell and Haworth (1983) plotted pedestrian traffic on an eight point scale. This was found to be significant in determining the sales of rural and town centre shops but not those in suburban locations.

A similar though intuitively less important variable is road traffic. Chell and Haworth (1983) classified roads on a four point scale but only found this affected the sales of suburban shops.

Finally, the distance of a shop from the city centre can be evaluated. Davies (1973) found that rent and rates, which he considered to be a measure of "centrality", was the most important

determinant of shop trade after size had been taken into account. Hudson (1974) measured straight-line distance to the city centre and to his panel of consumers places of work, he found that the latter was the most important influence on choice of grocery shop.

3.1.2 Promotion

Promotion variables have been the subject of a considerable body of research. While much has been published on the subject it seems likely that a great deal more has been suppressed on the grounds of commercial confidentiality (Lipstein 1980). Several attempts have been made to incoporate these variables (along with other variables) as components of what is termed "image". Notwithstanding these efforts there is a lack of sophisticated theory in the promotional sphere and complex interactions between the influences involved have not been the subject of any rigorous investigation. This section covers all forms of display, advertising and personal selling.

It may be argued that the main promotional device of any shop is its physical presence; consequently physical appearance may be of paramount importance in attracting customers inside. Chell and Haworth (1983) rated interior and exterior attractivenesss on a five point scale but without finding this to be a useful predictor of shop sales. Hudson (1974) asked respondents to rate shops according to exterior attractivenesss but did not find this was helpful in predicting store choice. Clawson (1974), in a study of building societies, found exterior attractiveness was significant in predicting their turnover.

Overall attractivenesss is an impression resulting from

individual factors such as layout, frontage etc. any realistic assessment of the effect of "attractivenesss" needs to confront this issue and attempt to gauge the individual effect of such variables. Some studies have attempted to measure some of these underlying variables individually. Hudson (1974) and Davies (1973) both measured frontage, although without finding any detectable effect.

The effect of shelf display may depend on quantity or arrangement. Chell and Haworth (1983) measured the length of display devoted to magazines and found that it was an important predictor of sales regardless of the type of centre in which the shop was located. Investigations of shelf space arrangements have usually taken the form of experiments; either in a single shop or in several in order to eliminate extraneous effects. Lipstein (1980) lists several examples involving dump displays, end of aisle displays, display heights and the relative exposure of different products. In general, it would appear that items subject to impulse purchase are most effectively placed in prominent positions. Packard (1957) notes that customers can be most easily influenced by effective displays placed at eye level. Hill (1966) points to the effectiveness of strategic positioning of impulse goods such as the placing of confectionery near supermarket checkouts.

Major retailers seem to disagree as to whether their best selling lines should be placed at the back or front of the shop (Ornstein 1976). In the former case the merchandise is subjected to a higher level of in store traffic and its increased visibility may further boost sales. In the latter case sales of other items may benefit from increased traffic as customers pass them in order to

reach fast-selling lines. Hansen and Deutscher (1977), in an investigation of supermarket customers, found that eye-catching displays are effective but only to a subsidiary degree.

In-store advertising is mentioned by Lipstein (1980) as having been experimentally determined to be effective in promoting sales. Of greater importance, perhaps, are information signs, especially those relating to price. Hansen and Deutscher found this to be one of the most salient factors in food shopping. NCC (1980) found that 80% of Asians and Carribeans who shopped at an English-owned supermarket considered this to be an important attraction.

More general physical attributes such as lighting and carpets and general cleanliness have also been identified as having an impact. Lindquist (1974) found that lighting and carpets are an important component of a customers conception of "image". Ornstein (1976) claimed that these have an important impact on the interior of a shop and reflect the operators' general attitude. Many large retailers take a no-nonsense approach to lighting while, at the other extreme, so-called "atmospherics" have been shown to be effective in promoting certain types of merchandise (Kotler 1973).

Hansen and Deutscher (1977) found that cleanliness was considered by many customers to be the most important feature attracting them to food shops. The Scottish Development Department (1982) also found this to be important in attracting people to shop at hypermarkets. NCC (1982) found that one tenth of their sample considered cleanliness to be important in determining where they shopped, one quarter of those shopping at English supermarkets stated this as a reason for doing so.

Such features as toilets, changing rooms, restaurants,

seating and telephones do not affect sales directly but may add to the customers' favourable impressions, they may also increase store traffic (Engel and Blackwell 1982:224). Zybytniewski (1980) found that the provision of a restaurant can increase traffic by 6% in supermarkets. Woman Magazine (1983) found that 43% of their respondents wanted lavatories to be provided in supermarkets, 10% wanted seating and 8% wanted telephones.

Determination of the effect of shop size or trading floorspace is complicated by its obvious interrelation with such factors as product range, layout and service type. Tilley and Hicks (1970) noted that sales density decreases as size increases, a similar effect was also noted by Pope (1979). Eliot (1983), in a study of branches of the Co-op, found an opposite effect. In the latter case, however, it is not clear to what extent extraneous factors (such as the association between size and other manifestations of modern retail practice) may have confounded the results. The Economist Intelligence Unit (1972) found that stock-turn increases with size. Tilley and Hicks (1970) found that transaction value is greater in larger shops. Hudson (1974) measured floor area but found it had no bearing on a customers' choice of shop. Davies (1973) measured gross floorspace and gross selling floorspace (stock rooms etc. are not included in the latter). Gross selling floorspace accounted for 54% of the variance in the turnover of the shops in the variety chain he studied.

The extent of self-service has obvious benefits for the retailer in terms of cost savings and these may be passed on to the customer. This may increase the attraction of such shops. Henksmeier (1960) found that turnover was 168% higher in self-

service shops and this may be due to such factors. Harman (1979) claims that self-service has a "better image" in small shops. The presence of self-service may have more direct effects however. Packard (1957) claims that self-service shops exercise a hypnotic effect upon shoppers who may, therefore, be particularly susceptible to impulse purchasing. It also seems likely that some customers prefer to make shopping decisions in the absence of intervention by sales personnel. NCC (1982) found there was a distinct preference in their sample for self- selection of fruit and vegetables. For these goods it is likely that customers prefer to satisfy themselves as to quality before purchase.

Jolson and Spath (1973) found that the availability of competent and congenial sales staff was extremely important to the shoppers thay studied, it rated fourth out of fourteen factors. The Scottish Development Dept.(1982) found that speed through checkouts (clearly strongly related to staff availability) was stated by customers as the second most important reason to patronise a hypermarket (Jones 1982). Davies (1973) measured the number of staff but did not find any significant effect. Hudson (1974) found that speed of service was mentioned by 24 out of 26 of his respondents as being important in determining where they shopped.

A second aspect of personal selling is the friendliness or willingness of staff. Jolson and Spath (1973) found this to be important. NCC (1982) found that 20% of their sample rated this as determinant in their choice of shop. Pleasantness was linked to accuracy and was the sixth most important factor in a study of supermarket shopping by Hansen and Deutscher (1977). Watkin (1978) noted that 20% of his sample considered friendliness to be the most

important influence on their decision to patronise a small shop, 45% put this as the second most important reason. Woman Magazine (1983) found that 98% of supermarket shoppers were concerned that assistants should be congenial. Only 1% stated that it was the most important factor in shop choice however.

A third aspect of personal selling is competence. It is logical that while sales staff should be available and willing they must also be competent. Three quarters of a sample in a study by Chain Store Age Executive Magazine (1978) thought that assistants should be knowledgable and helpful. The extent of competence required is clearly dependent upon the nature of the goods concerned. Schiffman, Dash and Dillon (1977) found that those shopping in specialty stores (see Section 3.3.1) require knowledgable staff. Knowledgability and the ability to communicate are not necessarily the same thing. Clark (1982) points out that the "craft of selling" requires the ability to distinguish the "timewaster" from the genuine customer as well as the ability to assist the customer in making a decision.

Personal relations between staff and customers may involve simple knowledge of a persons name or longstanding personal friendship. Hansen and Deutscher (1977) found that the former was important in supermarket retailing but only in a subsidiary sense. NCC (1982) found that 10% of their sample considered personal relationships to be important in choosing a shop, one third however gave it as a reason for shopping at an ethnic shop.

The reputation of a shop for certain types of merchandise, quality, reliability and the treatment of complaints etc. clearly has the capacity to affect trade. Such reputation may come about in

a variety of ways; through the personal experience of customers over many years, as a result of personal recommendation, as a result of the sheer size of the organisation or as a result of advertising. Fenwick (1979) found that the number of years a building society had been trading was an important determinant of the level of weekly deposits. Berry (1981) cites a good deal of research evidence which confirms the role of word of mouth in determining the choice of service outlets. Similarly Kelly (1967) found that 32.6% of people found out about a new product this way and that it was the single most important factor in determining choice. Berry (1980) suggests that word of mouth may be "leveraged" by artifices such as writing thankyou letters to external sources of favourable publicity.

The size of an organisation itself may affect the reputation of an individual shop. Large chains, in particular, may exploit advertising and customer franchise for the purposes of corporate image building. Standardisation of individual branches means that the reputation of one branch may benefit the trade of another and that customers know what to expect. Hudson (1974) found that organisation type was rated as important by his sample of consumers.

Generally speaking advertising outside the shop (on hoardings, newspapers, handbills, magazines, radio and TV) is not widely practised among independent retailers. Even among the very largest retail organisations there are some who hardly advertise at all, several others restrict large campaigns to new store openings. Lipstein (1980) cites a survey by the Newspaper Advertising Bureau (USA) which found that newspaper advertising was effective for

retailers although this is an admittedly partisan source of information. Kaiser and Krumm (1976) found that price advertising affected one third of their sample although this was not a major determinant of shop choice. Clawson (1974) found that local advertising affected the performance of building society branches. It seems likely, therefore, that the effect of advertising depends upon the type of product in question.

Even shops that do not advertise can take advantage of national campaigns by stocking certain brands. Brands were a major influence in post war years when manufacturers could induce retailers to stock their products by ensuring that they were virtually sold in advance (Jefferys 1954, Klingender 1951). Subsequently the growth in own-brands from large retailers and wholesaler-sponsored voluntary groups has, to some extent, undermined manufacturer brands although the extent to which this has occurred should not be overstated. Hudson (1974) found that 24 out of 26 of his sample of consumers considered brands to be important in their choice of shop.

Special promotions are a method by which the retailer attempts to extend his appeal to new customers. Ornstein (1976) notes that they are mainly price promotions which may utilise outside advertising to some degree. They also take the form of stamps (currently of limited importance) free gifts, competitions and specially priced linked purchases.

3.1.3 Product

Product has already been mentioned as a variable which most probably affects the relative salience of other variables, owing to differential involvement of the consumer with the purchase decision. In the present section product variables are considered in relation to their capacity to affect sales in a more direct way. The main issues are depth and width of assortment, warranty and after sales service and delivery.

Hudson (1974) found that 23 out of 26 of his respondents considered that "stock range" was important in shop choice decisions. Several others have included depth and width of assortment in their definitions of "image" (Claxton and Ritchie 1979, Gentry and Burns 1977, Hansen and Deutscher 1977). NCC (1982) found that 71% of their sample of Asian and Caribbean shoppers mentioned "general range" as a reason for shopping at an English-owned supermarket. The terms "general range" "depth and width of assortment" lack any clear definition and appear to confound variables representing several distinct underlying concepts, these may have considerably different appeals from the customers point of view. It therefore seems sensible to try to separate them. The approach taken here is to consider product range under three headings; the number of product categories, the number of lines within a category, and the number of choices within a line.

Product categories may be defined as collections of goods which commonly constitute a separate specialist line of business. Within grocery retailing; bread and flour confectionery and meat and greengrocery constitute separate categories while washing

powders soaps and cleaning fluids do not. Klingender (1951) noted that many small shops attempt to sell virtually everything indicating that shopkeepers have found this practice to be beneficial to trade. Latterly such practices appear to have grown in popularity and extend from local garages selling petrol, cigarettes, watches and garden furniture on the one hand to the vast hypermarket which attempts to satisfy all the consumers needs in a retail outlet (popularly termed "one-stop-shopping"). Lee and Kent (1975), in a study of the impact of a new branch of Carrefour at Caerphilly, found a very low degree of loyalty among customers for consumer durables compared to that for groceries at the same site. It may be that in spite of one-stop-shopping consumers still prefer to shop around for less frequently purchased items. Jones (1982) notes the current trend among supermarkets to incorporate butchery, delicatessen and greengrocery departments, Woman Magazine (1983) noted that 76% of their sample of readers would use such facilities if they were provided. Chell and Haworth (1983) measured other goods on sale (apart from traditional lines) among the newsagents they studied; including toys, books, post office and grocery. They found that the inclusion of toys was associated with an increase in magazine sales, rural shops also benefitted from holding a Post Office franchise.

Within a particular category further distinctions may be made on the grounds of substitutability. Goods which may not be substituted for one another are considered be different lines, substitutable items are considered to be choices within a line. In practice it is not always easy to apply this classification. Although a person shopping for trousers is unlikely to accept a

shirt as a substitute, difficulties arise over whether different types of trousers (say cords and denims) should be considered to be different lines. Similarly, are brown and white types of bread different lines or choices within a line named "bread"? Such decisions are extremely arbitrary. Clearly the more lines that are offered the greater the chance a shop will have of satisfying a particular customer, however the physical size of the shop and objectives for categories and choices will act as constraints. Mercer (1974) referring to durable goods suggests that a customer may reject a range if insufficient choice is offered Davies (1983) claims that in food retailing today the customer is likely to demand actual product choice rather than simply brand choice as had been the case in the past.

Specialisation may involve either offering a great many lines and little actual choice or offering a lot of choice and very few different lines. Klingender (1951) found that many small shops were extremely specialised while more recently Bolton (1971) noted that the strength of the small shop lay in its ability to cater for esoteric or specialised tastes. Davies (1982) claims that large retailers are capable of making inroads into specialist strongholds and have made considerable progress by opening bakeries and butchery departments. NCC (1982) found that specialisation in ethnic foods was important in the patronage decisions of their sample of Asian and Caribbean shoppers.

Other aspects of product range are pack size, quality and availability. NCC (1982) found that many of their sample considered it important that a shop sold food items in either bulk sizes or in very small sizes of pack. Quality has been noted as an important

component of image by Kunkell and Berry (1968), Lindquist (1974), Claxton and Ritchie (1979) and several others. Freshness was found to be the fifth most important factor attracting shoppers to supermarkets (Hansen and Deutscher 1977). NCC (1982) found that 32% of their sample stated freshness as a reason to patronise an ethnic shop.

Hansen and Deutscher (1977) found that well stocked-shelves was the seventh most often-stated reason for patronising a particular supermarket while Packard (1957) cites a study by Progressive Grocer magazine which found that 22% more is sold when the shelves are full.

Kunkell and Berry (1968) included reputation on adjustments in their conception of image. It is most likely to be important where high-involvement purchases are concerned and matters particularly to the customers of department stores (Miller 1976). NCC (1982) found that 28% of their sample considered policy on returns to be very important, 39% thought it was important and 33% considered it not important at all.

In general it is likely that delivery is less important today than previously although exceptions obviously exist where large and bulky items are concerned (Hedderwick,Stirling,Grumbar 1979). NCC (1983) found that 63% of their sample saw this as a reason to patronise an ethnic food shop. Any suggestion that this may be a feature peculiar to ethinic retailing is not supported by Aldrich's (1980) finding that only 26% of ethnic shops make deliveries compared to 51% of white-owned shops.

3.1.4 Price Variables

In spite of the generally accepted importance of pricing, what empirical work there is seems extremely sketchy and confined to average price level. That low prices should be attractive to the customer has high face validity, has been suggested as an important reason for the growth of large scale retailing (Hedderwick,Stirling,Grumbar 1979) and is the stated preference of the customers themselves (Woman Magazine 1983). Measurements of price have usually taken the form of the computation of price for a basket of goods. Hudson (1974) measured the price for both standard brands and "cheapest alternative" varieties. The method suffers from the defect that much depends on the mix of products in the basket. The question also arises as to what extent a customer is aware of the actual price level in cases where strategic pricing and price advertising may give a misleading view of the overall situation within a particular shop. The appeal of prices may not be confined to cheapness however, Hill (1966) suggests that prices may be used by customers as an indication of quality and it may be that expensive alternatives offered for sale may enhance the sales of cheaper products. In addition, choice of prices may be an important component of choice in general.

Credit was at one time of considerable importance in food retailing (Klingender 1951) but this is thought to have declined. Aldrich (1980) found that 26% of white-owned grocery shops in his sample offered it compared to 18% of Asian-owned shops. NCC (1982) found that 31% of a sample of Asian and Caribbean consumers favoured it while 61% thought it not to be important. Simmons

(1981) considered that it formed an increasingly important element in consumer durable sales with 40% of clothing, 25% of funiture and 20% of electrical goods being sold using some form of credit. Clearly however the position is complicated by the myriad different sources and while hire-purchase and acceptance of credit cards are attributes of the shop themselves, second mortgages and bank loans (which probably represent an important source of credit for retail purchases) are not shop-specific.

3.1.5 Other Variables

A number of variables, which have been identified as influencing shop sales, do not fit into the marketing mix classification. Chell and Haworth (1983), for instance, included a measure of the motivation of the proprietor among the factors that they considered might affect magazine sales in newsagents shops. This was found to be an important influence. Although this and other variables, representing managerial and operational techniques, undoubtedly have the potential to influence sales they do so indirectly by acting on the marketing mix and this in turn acts on the customer. In consequence, it must be argued that any consideration of the factors affecting sales should in the first instance be concerned with the marketing mix.

3.1.6 Conclusion

This section has been concerned with the identification of factors which are thought to be important in attracting customers to a shop. A great many such influences have been identified both at a general (conceptual) and specific (operational) level. These are

derived from a wide variety of sources which range from methodical investigative research to the considered opinions of the knowledgable. Some 200 such influences have been identified and these are listed in Table 3.1. This list constitutes a rudimentary theoretical framework and may be used as a starting point in the development of more specific models or retail marketing strategies. The following section considers more sophisticated models which take into account the relative importance of these factors.

3.2 The Relative Effectiveness of Factors Affecting Shop Sales

The previous section has attempted merely to identify the factors that affect shop sales. In several instances, however, influences have been described as being "of principal importance" or "the most important" factor. The present section examines the issue of relative importance by detailed examination of a number of the studies which have already been cited in order to gather evidence of the existence and nature of such hierarchical effects. Studies have been selected on the basis that:

a) They consider more than one variable representing the marketing mix.

b) Some mechanism is applied for ordering these variables hierarchically in terms of their implied effects on sales.

Broadly speaking such studies employ two types of ordering mechanism; rating of effects in terms of customer/retailer preference and quantification of the effect on actual sales by

TABLE 3.1 List of Factors which Affect Retail Sales

Element	Concept	Variable	Source
Location	Centre attractiveness	Hierarchical position of centre	Christaller (1933) Berry (1967)
		Range of choice in centre	Herren et al (1968) Thomson (1971)
		Population	Reilly (1931)
		Retail sales	Manchester Univ (1966)
		No. of employess in retailing	Davies (1970)
		Retail floorspace	Huff (1963) EDC (1970)
		No. of multiples	Davies (1973)
		No. of major competitors	Davies (1973)
		No. of chain branches	Davies (1973)
		Type of centre (rural, suburban, town)	Chell+Haworth (1983)
		Distance from populations	Huff (1963) Manchester Univ (1966)
		Drive time from populations	Huff (1963) Manchester Univ (1966)
		Social class of populations	Martineau (1958) Nader (1969) Lee & Kent (1975 & 77) Hallsworth (1982) Chell+Hallsworth (1983)
		Urban retail expenditure	Davies (1973)
		Occupation of pops.	Fenwick (1979)
		Income	Clawson (1974) Martineau (1958)*
		Race	NCC (1982)
		Car ownership	Lee & Kent (1975 & 77) Rogers (1977)

TABLE 3.1 List of Factors which Affect Retail Sales (continued)

Element	Concept	Variable	Source
Location	Centre attractiveness	Age	Guy (1983) Lee & Kent (1975 & 77) Rogers (1977)*
		Lifestyle	Darden et al (1978)
		% newly developed neighborhood.	Jones & Mock (1982)
		Bus access	Rogers (1977)
		Car parking	NCC (1982) Woman magazine (1983)
		Time spent parking	Lewis & Traill (1968)
		Pedestrianisation	Hallsworth (1982)
	Nature of immediate environment	Road traffic	Berry (1967) Chell & Haworth (1983) Hudson (1974)
		Pedestrian traffic	Chell & Haworth (1983)
		Type of street	Davies (1973)
		Whether corner site	Davies (1973)
		Rent	Davies (1973)
		% of apartments within half mile.	Jones & Mock (1984)
		% single family dwellings within half mile	Jones & Mock (1984)
		Nature of neighbouring shops	Chell & Haworth (1983)
		Distance from city centre	Hudson (1974)*
		Opening hours & times	Bechhofer et al (1971) Hollander (1973) Kirby (1976) Chell & Haworth (1983) NCC (1982) Woman magazine (1983)

TABLE 3.1 List of Factors which Affect Retail Sales (continued)

Element	Concept	Variable	Source
Location	Competition	No. of competitors	Davies (1973)* Cohen & Applebaum (1960) Guy (1983) Fenwick (1979)*
		Type of competition	Chell & Haworth (1983)
		Distance to competition	Chell & Haworth (1983)
Promot'n	Display Attractiveness	Interior attractiveness	Chell & Haworth (1983)*
		Exterior attractiveness	Hudson (1974)* Chell & Haworth (1983)*
		Frontage	Hudson (1974)* Davies (1973)*
		Shop size	Tilley & Hicks (1970) Pope (1979) Eliot (1980) EIU (1972) Davies (1973)
		Shelf feet	Chell & Haworth (1983)
Promot'n	Display attractiveness	Display arrangement	Lipstein (1980) Packard (1957) Hill (1966) Ornstein (1976) Hansen+Deutscher (1977)
		In store advertising	Lipstein (1980)
		Information signs	Hansen+Deutscher (1977) NCC (1982)
		Lighting/carpets	Lindquist (1974) Ornstein (1976)
		Atmospherics	Kotler (1973)
		Cleanliness	Hansen+Deutscher (1977) NCC (1982) Jones (1982)

TABLE 3.1 List of Factors which Affect Retail Sales (continued)

Element	Concept	Variable	Source
Promotion	Interior environment	Toilets, changing rooms restaurants, seating telephones	Engel+Blackwell (1982) Zybytniewski (1980) Woman (1983)
	Quality of personal selling	Extent of self-service	Henksmeier (1960) Harman (1979) Packard (1957) NCC (1982)
		Staff competence	Jolson & Spath (1973)
		Staff avaliablity	Jones (1982) Hudson (1974)
		No. of staff	Davies (1973)
		Friendliness	Jolson & Spath (1973) NCC (1982) Hansen+Deutscher (1977) Watkin (1977) Woman (1983)
		Competence	Jolson & Spath (1973) Chain Store Age Executive (1978) Schiffman et al (1977) Clark 1982
		Personal relationships	Hansen+Deutscher (1977) NCC (1982)
	Reputation	Years in business	Fenwick (1979)
		Word-of-mouth	Berry (1981)
		No of branches	Hudson (1974)
	Advertising	Volume of newspaper adv.	Lipstein (1980)
		Price advertising	Kaiser & Krumm (1976)
		Local advertising	Clawson 1974
		Stock national brands	Jefferys (1954) Klingender (1951) Hudson (1974)

TABLE 3.1 List of Factors which Affect Retail Sales (continued)

Element	Concept	Variable	Source
Promotion	Special promotions	Stamps, free gifts, linked purchases, free samples.	Ornstein (1976)
Product	Extent of product range.	Depth & width of assortment	Hudson (1974) Claxton+Ritchie (1979) Gentry+Burns (1977) Hansen+Deutscher (1977) NCC (1982)
		Mixed merchandising	Lee & Kent (1975-77)* Jones (1982) Woman Magazine (1983) Chell & Haworth (1983)
		Availablity of choice	Mercer (1974) Davies (1983)
		Specialisation	Klingender (1951) Bolton (1971) Davies (1982)* NCC (1982)
		Brands	Jefferys (1954) Klingender (1951) Hudson (1974)
Product	Product range	Order quantities	NCC (1982)
		Quality	NCC (1982) Kunkell+Berry (1968) Lindquist (1974) Claxton+Ritchie (1979) Hansen+Deutscher (1977)
		Stock levels	Hansen+Deutscher (1977) Packard (1957)
	Warranty		Kunkell+Berry (1968) Miller (1976) NCC (1982)
	Delivery		Hedderwick et al (1979) NCC (1982)

TABLE 3.1 List of Factors which Affect Retail Sales (continued)

Element	Concept	Variable	Source
Price	Price level	Low price	Hedderwick et al (1979) Woman magazine (1983) Hill (1966)*
		Price for standard	Hudson (1974)
		Price of cheapest	Hudson (1974)
	Credit	Availability	Klingender (1951) Aldrich (1980) NCC (1982) Simmons (1981)

* Indicates respective investigator found the variable to have no effect.

means of multivariate statistical analysis. These two types of study are considered separately. Detailed consideration is given to the value and appropriateness of the methods used in the various investigations and to the strength of the findings in theoretical terms.

3.2.1 Studies of Consumer/Retailer Opinion

A detailed discussion of the strengths and weaknesses of various data collection methods is presented in Chapter 4. For the present it will be useful to summarise the main points as they relate to surveys relying on responses from consumers or retailers. Major weaknesses inherent in this method are:

a) That the requirement of perticipation may limit the sample size and representativeness to an unacceptable degree.

b) That differential degrees of understanding/enthusiasm among respondents may affect results

c) That respondents may not be in possession of the required information or may unconsciously rationalise buying behaviour to maximise consonance with other beliefs. Although sophisticated attitudinal measures may overcome some of these problems (Engel and Blackwell 1982) such methods are difficult to use and most of the studies considered here simply ask the respondent for his/her preferences.

d) The respondent may consciously adjust a response in order to appear in a favourable light.

e) Quantification of the sales arising as a result of a given attribute is unlikely to be possible using this method.

Strengths of the method are:

a) That purely investigative research may be pursued without it being necessary to determine in advance which factors should be measured.

b) Where a consumer (as opposed to a retailer) survey is undertaken the results are unlikely to be biased by considerations of commercial sensitivity.

c) The survey need not be confined to outlets operated by a single organisation.

The present section considers in detail the results obtained in a number of studies of consumer or retailer views on the desirability of various shop attributes.

Perhaps the most prolific category in terms of retail type studied using this method is the supermarket. Some of these studies may be termed "impact studies" being intended to contribute to an assessment of the effect of new shopping developments (mostly in off-centre or out-of-town locations). Hallsworth studied a new Asda superstore in Plymouth, using a shop door survey of 1160 shoppers. Respondents were asked to list the aspects of the shop which met with their approval, ranking of shop attributes was then made on the basis of the number of mentions received by each. The results for this study are presented in Table 3.2. The most important factors were found to be prices and shop layout. Clearly a shop

TABLE 3.2 Summary of the Results of a Number of Studies of Marketing Mix Effectiveness Using Data on Consumer/Retailer Opinion.

Source	Target	Ranking Method	Rank & Variable	Score
Woman 1983	Supermarkets	No of mentions	1.Price	-
			2.Range of choice	-
			3.Convenience of location	-
			4.Presence of fresh foods	-
			5.Parking	-
			6.Late night shopping	-
			7.Staff attitude	
Hansen & Deutscher 1977/ Zybytniewski 1979	Supermarkets	No of mentions	1.Cleanliness	-
			2.Low prices	-
			3.Price labelling	-
			4.Good produce dept.	-
			5.Freshness	-
			6.Accurate & pleasant checkout staff	-
			7.Well stocked shelves	-
James, Durand & Dreves 1976	Gent's Outfitters	Mean rating on scale 1-7	1.Quality	6.37
			2.Price	6.13
			3.Assortment	6.11
			4.Service	5.63
			5.Personnel	5.15
			6.Atmosphere	4.84
Watkin 1976	Small grocers	% rating most important	1.Convenience	48.2
			2.Friendliness/personal service	20.0
			3.Prices	5.5
		% rating 1st 2nd or 3rd most important	1.Friendliness/personal service.	60.5
			2.Convenience	48.2
			3.Choice	22.8
Hudson 1974	Small grocers	No. of mentions	1.Convenience to home	100
			2.Price level	100
			3.Speed of service	92
			4.Brand range	92
			5.Convenience to work	88
			6.Stock range	88
			7.Quality	85
			8.Opening hours	77
			9.On route	61

TABLE 3.2 (continued)

Source	Target	Ranking Method	Rank & Variable	Score
Hudson 1974	Small grocers	Mean ranking	1.Price level	2.5
			2.Convenience to home	2.8
			3.Quality	4.0
			4.On route	4.0
			5.Stock range	5.0
			6.Convenience to work	7.0
			7.Speed of service	7.0
			8.Opening hours	7.0
			9.Brand range	8.0
			10.Attitude of staff	9.0
NCC 1982	Small grocers	No. of mentions as main reason for patronage	1.Location	-
			2.Product range	-
			3.Fresh food	-
			4.Friendly service	-
			5.Quality/cheapness	-
	Supermarkets	No of mentions as main reason for patronage	1.Product range	-
			2.Location	-
			3.Cheapness	-
			4.Cleanliness	-
			5.Quality	-
Hallsworth 1982A	Asda Superstore	No of mentions as reason for choice of this shop.	1.Prices	355
			2.Layout	345
			3.Range under one roof	279
			4.Range of choice	192
			5.Convenient location	182
			6.Ease of parking	159
			7.Cleanliness	144
			8.Size & spaciousness	135
			9.Staff and services	111
			10.Goods easy to find	104
Hallsworth 1982b*	Small retailers	Mentions as main factor affecting trade.	1.Parking	-
			2.New precincts & pedestrianisation	-
			3.Population & store mix	-
			4.Impending Asda competition.	-
			5.Roads & bus service	-
			6.Multiples in centre	-
			7.Industry & shopping	-
			8.Prices	-

- indicates this information is not available.
* indicates survey of retailer opinion, other surveys are of consumers.

door survey of a single superstore is limited in its scope however.

Woman Magazine (1983) carried out a survey of supermarket shopping habits, using a self-selected sample of respondents to a published questionaire. Although 40,000 responses were received it is clear that this sample too is restricted in terms of its representativeness since it is confined to those of the magazines readers who were willing to reply. The magazines readers considered that price and range of choice were the most important factors determining where they shopped. The precise scoring method used in this study and the scores themselves have not been published. The National Consumer Council (1982) in a study of South Asian and West Indian- derived populations in Bradford asked respondents to state the main reason for shopping at various types of food shop. The results of this survey are presented in Table 3.3. For supermarkets most respondents mentioned "general range" and "ethnic range" as being the most important factors determing their choice.

While the studies considered so far have taken place in the U.K. much American work also exists. Comparisons must however take account of the likelihood that considerable cultural differences exist between these two nations and that this may affect shopping behaviour.

Engel and Blackwell (1982) note that "considerable convergence" exists between the results of studies into consumer attitudes to supermarkets. These authors cite studies by Hansen and Deustcher (1977) and Zybytniewski (1979) which were in agreement in their findings as to the relative importance of retail marketing attributes. It was found that cleanliness and low prices are the main factors affecting trade. The present author is not in

possession of any further details regarding these studies. It is clear that, although important similarities exist, there is a considerable lack of convergence between these results and those obtained in the British studies of supermarket retailing

Concern with the position of the smaller retailer has meant that a number of studies have attempted to measure consumer attitudes to small grocery shops. Watkin (1976), using a random sample of 200 consumers, compiled a list of their reasons for patronising a small shop; nearly half cited locational convenience as the most important reason while one fifth cited friendliness/personal service, 45% also cited this as the second most important reason. Hudson (1974) asked a sample of 26 student respondents to rank their reasons for shopping at small grocery shops in order of importance. Shop attributes were subsequently ordered according to both the number of mentions and the mean ranking. Location relative to home and price level were found to be most important in both cases. Clearly this study incorporates defects in terms of the generalisability of the findings due both to the small sample size and the restriction of the sample to student respondents.

The study by NCC (1982), which has already been described, found that location, ethnic range and general range are most frequently cited as the most important reason for patronage of local shops by ethnic minorities in Bradford.

James, Durand and Dreves (1976) asked respondents to rate (scale 1-7) attributes of gent's clothing shops which they favoured. They found that quality and price were considered most salient by their sample.

Finally, Hallsworth (1982b), in a study of the impact of a new superstore in south-west England, asked retailers to list those factors which they considered to be the main ones affecting trade. Parking, environmental factors and pedestrianisation were their main concerns. Clearly a study of this type suffers from a number of defects. Nearly all of the factors cited by the respondents are those external to the shop itself and therefore out of the control of the shopkeeper. It seems likely, therefore, that retailers viewed the study as a means to lobby policy-making bodies. It is in any case possible that retailers are reluctant to give accurate information on operational concerns owing to the commercial sensitivity of this type of information.

This section has considered a number of studies which have collected information on the relative effectiveness of shop attributes from consumers or retailers. The results for each study are summarised in Table 3.3. It is clear that in spite of the fact that many studies focus on similar types of retailing there is little convergence in the results obtained. This may be due either to defects in the method itself (many of which have been outlined in the course of the analysis), to a lack of compatibility in the methods used (due to differences in definition or construction of questions) or to differences between the precise types of retailing concerned and the various populations from which samples have been drawn. It is notable that in no case has any investigator attempted replication of an existing study or testing of the results. Nevertheless, a few overall conclusions may be drawn as to the relative effectiveness of the factors which have been investigated. These are as follows:

TABLE 3.3 Summary of the Results of a Number of Studies Using Multivariate Analysis of Data on Shop Attributes and Sales Turnover.

Source	Target	Ranking Method	Rank & Variable	Score
Davies 1973	Durable goods chain	Multiple R increment	1.Gross selling area	.74
			2.Rent and rates	.79
			3.Distance to car park	.81
			4.No of branch stores in centre	.83
			5.Store accessibility	.84
			6.Urban expenditure on products.	.85
			7.Total urban retail expenditure	.85
			8.Gross floorspace	.86
	Durable goods chain-intermediate sites		1.Total urban retail expenditure	.69
			2.Store accessiblity	.80
			3.Gross selling area	.84
			4.Gross floorspace	.86
			5.No. of multiple branches .in centre	.87
			6.Shop quality	.88
			2.% males 15-64 yrs in catchment area	.89
			8.Distance to car park	.89
	Durable goods chain-corner site		1.Gross floorspace	.81
			2.Store accessiblity	.80
			3.No. of branch stores in centre	.85
			4.Urban growth rate	.87
			5.Distance to car park	.89
			6.% in socio-economic group A in catchment area	.92
			7.Urban expenditure on product.	.93
			8.Rent and rates	.95
Fenwick 1979	Building Societies	Significance	1.Index combining age and population size in each socio-economic group, New house construction Years branch established	-
			2.Competition	-

TABLE 3.3 (continued)

Source	Target	Ranking Method	Rank & Variable	Score
Fenwick 1979	Building Societies	Significance	1.Age and population size in each socio-economic group divided by competition, Years branch established divided by competition	-
			2.Houses under construction	-
Clawson 1974	Building societies	Multiple R Increment	1.Competition	.45
			2.Population in catchment area in 45-64 group	.60
			3.Exterior attractiveness	.70
			4.Income per capita in catchment area	.75
Jones & Mock 1984	Convenience store chain-central city	Multiple R increment	1.% apartments within half mile	.55
			2.% customers who arrive on foot (-ve)	.72
			3.Car accessiblity (-ve)	.81
			4.Competition within 3 blocks	.83
	-suburban sites		1.% new development in neighborhood	.90
			2.Competition within 3 blocks (-ve)	.91
			3.Car accessiblity	.92
	-old strip sites		1.% new development in neighborhood	.92
			2.% single family dwellings within half mile (-ve)	.94
			3.No of parking spaces	.98
	-urban fringe sites		1.% new development within half mile	.56
			2.Population within quarter mile	.69
	.		3.Condition of road	.76
	.		4.Competition within 3 blocks -ve	.80

TABLE 3.3 (continued)

Source	Target	Ranking Method	Rank & Variable	Score
Jones & Mock	-non metropolitan sites		1.Pedestrian count	.30
			2.% customers arriving on foot (-ve)	.43
			3.No of sales generators in area	.55
			4.% single family dwellings within half mile	.59
			5.No. of parking spaces (-ve)	.63
Chell & Haworth 1983	Newsagents magazine sales -rural sites (83 shops)	Multiple R increment	1.Attraction of adjacent shop types	-
			2.Pedestrian traffic	-
			3.Whether toys are sold	-
			4.Pedestrian traffic x *whether toys are sold*	-
			5.Whether their is a post office in the shop (-ve)	-
			6.Motivation of operator	-
			7.No. of delivery boys	-
			8.Shelf feet of display	-
			9.Competition (-ve)	-
			10.% sales of quality newspapers	.94
	-town centre sites (38 shops)		1.Pedestrian traffic	-
			2.Whether toys are sold	-
			3.% sales of quality newspapers	-
			4.Motivation of operator	-
			5.No of delivery boys	-
			6.Shelf feet of display	-
			7.Market share	-
			8.Age of operator (-ve)	.93
	-suburban (67 shops)		1.Road traffic	
			2.Attraction of neighboring shops	-
			3.Whether toys are sold	-
			4.Motivation of operator	-
			5.No of delivery boys	-
			6.Shelf feet of display	-
			7.Competition	-
			8.Market share	-
			9.Age of operator	.90

- indicates this information is not available.
* indicates survey of retailer opinion, other surveys are of consumers.

a) For supermarkets, low prices appear as either the most important or second most important effect in three out of the four studies considered.

b) For small grocery shops convenience of location is cited as being the most important or second most important factor in all the relevant studies.

These results will be given further consideration in the following section.

3.2.2 Studies Involving Comparisons of Retail Attributes and Sales Performance

A number of studies attempt to identify the effectiveness of retail attributes by comparing these with sales across a range of shops. Multivariate analysis is used in order to identify and isolate the effect of individual variables. This method holds a number of advantages over response studies:

a) Whereas response studies measure consumer attitudes or behaviour at second-hand, with the concommitant risk of errors arising both in the consumer perception of the shop itself and of his/her own attitudes and behaviour, this type of study involves direct measurement of both behaviour (shop sales) and its causes (shop attributes).

b) The method offers the means to quantify the effect of a given attribute with considerable precision.

A number of problems also arise:

a) It is necessary to determine in advance which attributes are to be measured.

b) Only a limited number of variables can be entered into multivariate analysis if errors due to random combinations of variables are to be avoided (Alpert & Bibb 1980).

c) The intercorrelated nature of many shop attributes may give rise to instability in multiple regression equations and consequent problems in generalising results.

d) The sensitive nature of the data required gives rise to access problems and usually means that a study is confined to a single chain organisation. In such cases it may not be possible to publish a full account of the findings for reasons of commercial confidentiality.

e) Statistical association alone does not constitute evidence of a causal linkage between variables.

A number of studies are considered in this section, they represent all the investigations of this type known to the author. It is almost certain however that a much larger number have actually been carried out. Davies (1973), for instance, notes that:

> There has been considerable research in recent years into the effectiveness of retail store operations, particularly in chain companies of supermarkets, using multivariate statistical procedures and computer methods. Little of this research has been fully reported through the academic media since it usually

involves analyses of private and confidential information.

Two of the studies considered here relate to building societies. Although not generally within the mainstream of retail activity these are nevertheless engaged in selling financial services through conventional retail outlets. Clawson (1974) measured a variety of variables ranging from sociodemographic factors to the exterior attractivenesss of the outlet itself. Four factors are identified as being of principal importance in determining receipts. These are competition, number of persons in the area in the age range 45-60, exterior attractivenesss and income per capita. In common with many of the other studies cited here Clawson fails to report any clear evidence of the relative power of these variables. The values of multiple R, at each step of the multiple regression process, are reproduced in Table 3.3. It is the present author's experience, however, that the order of entry (which is based on partial correlation coefficients at a given step) do not necessarily reflect the relative power of the same variables (to affect the dependent variable) when they are combined into the final equation. Only Beta values (see Chapter 6.) provide this information It may be that such detailed information has been withheld at the request of the sponsors of the research. Clawson's study is subject to an additional defect. In a critique of his work Alpert and Bibb (1974) note that, although only four variables are present in the final equation, 25 were measured and are entered in to the analysis. Consequently the number of variables approached the number of shops in the sample (26). Alpert and Bibb argue that although Clawson avoids the pitfall of actually explaining the

variance in a given number of cases with a similar number of variables (a situation which invariably must result in an explanation approaching 100% regardless of the variables concerned), such a large number of variables simply being entered must increase the possibility that chance combinations will occur. These artificially inflate the degree of explanation and distort the findings.

Fenwick (1982) also studied building societies. He used branch balances rather than receipts as his dependent variable. The study confines itself to aspects of location. Although 36 variables were measured (compared to a sample size of 72) these were reduced in number prior to the regression by means of factor analysis. This complex technique was employed in order to create indices representing highly-correlated variables. The method facilitates a reduction in the number of variables to be analysed and eliminates error or instability due to intervariable correlation between independent variables. Notwithstanding these advantages, in the view of the present author the use of this technique is inappropriate in situations where the factor indices used have no theoretical meaning (and therefore fail to represent an identifiable concept). It is also necessary to provide a plausible explanation of how such an index is conceptually superior to its component variables. No supportive rationale is in fact provided.

Alone among the investigators cited here Fenwick attempts to take account of a possible non-linear interaction with competition by using a multiplicative device. Fenwick derives two models, the first of which achieved an explanation (multiple R squared) of 50%. This equation contained two factor indices (representing aspects of

catchment population age and their socio-economic class), a variable representing the number of new houses under construction and a variable representing the number of years since the branch was established. The number of competitors was included but was found to be insignificant in its effect. Although significance has no meaning in the absence of random sampling (it seems likely that Fenwick investigated branches belonging to a single society, although this is not stated) the measure of significance may be used as an indication of the relative strength of the variables in the equation in the absence of other statistics. Fenwick considered that this particular equation was inadequate since it indicated that the role of competition was small. He attempted to include a mechanism whereby a possible non-linear effect of this variable could be described. This was achieved by multiplying the societies balances by the amount of competition thus representing branch trade as a proportionate rather than an absolute value. Fenwick's second model accounts for nearly 70% of the variance in net balances. The model comprises two factors (representing age and socio-economic group) divided by competition and the number of years the branch had been established also divided by competition. The number of houses under construction (divided by competition) was included but was found not to be significant. These results are summarised in Table 3.3.

Another, almost unique, feature of Fenwick's study is that an attempt is made to test the predictive validity of the equations by testing them on a randomly selected group of outlets which were withheld from the initial analysis. Both models were tested in this way. The author reports that the first model is unsatisfactory in

this test although figures are not given. For the second (compound) equation the author notes that 62% of variance (in the dependent variable) is explained and that this compares to a figure of 69% for the original sample. Unfortunately it is not clear whether this difference is significant or to what population any generalisation might confidently be made.

Jones and Mock (1983) describe a study of a convenience store chain, again only only location variables are considered. 129 variables were measured but these were reduced in number before being entered into regression analysis. The method used to select variables for inclusion involved examination of crosstabulations. Those variables were selected which could be identified as being associated with the most successful performers in terms of sales. It is the opinion of the present author that such a method represents a rather crude approach to data reduction. Many variables that might provide additional explanation in combination with other variables are excluded on the basis that they fail to reach a given level of univariate association with the dependent variable. Jones and Mock do not attempt to derive an overall model for the shops they studied (at any rate no such model appears in published documents), instead separate models are evolved for shops in various types of location. Notwithstanding the criticisms made above (concerning the choice of variables to be entered into the analysis) the methods used do appear to be vindicated by the strength of explanation achieved by the various models. Entering approximately 9 variables for each group gives an explanation of approximately two thirds of the variance in sales in four subgroups out of five. For one group nearly 100% explanation is achieved.

Unfortunately no figures are quoted for the number of cases in these subgroups and it may be that these are very small.

The results of the study are presented in Table 3.3. No beta weights are cited by the original author and the relative influence of the variables must be inferred from order of entry (as stated earlier this is not a particularly satisfactory method). For central city sites "the percentage of dwellings which are apartments within a half mile radius of the shop" appears to be the most important factor affecting sales. The second most important factor is "the number of customers who are pedestrians", this is negative in its effect. Third is car accessibility (also negative) and fourth is "the number of competitors within three blocks". These results serve as an illustration of a point which has been made in the introduction to this section, namely that mere inclusion in a statistical result does not constitute evidence of a causal linkage. Whereas the number of apartments is an attribute of a particular location and may well influence shopping patterns owing to the particular lifestyles of apartment dwellers, it is very difficult to understand how "the percentage of customers who are pedestrians" can represent a factor affecting trade at all, let alone how one might explain its negative effect. Likewise, given such a negative effect it is difficult to explain why a lack of car accessibility should be beneficial. Further problems arise in the case of competition. The presence of nearby competitors is found to be beneficial to the trade of convenience stores, this effect may be rationalised in terms of the preference of customers for shops located such that they may easily make comparisons. However, this is hardly a feature that one expects to be associated with

convenience (see following section). It is far more plausible to conclude that a given set of circumstances favour convenience shopping and that these attract several such stores to a given location. Phenomena of this type are known technically as "third variable effects", these are a common source of error in statistical studies where no attempt is made to explain statistical effects in terms of a theoretical framework.

For suburban sites this study found that "the percentage of new developments", competition (-ve) and car-accesibilty are the the main influences. These account for over 80% of the variance in sales. For "old established strip sites",the percentage of new developments, the percentage of single family dwellings within half a mile (possibly a measure of population density) (-ve) and the number of parking spaces explained 96% of variance between sales. This is a suspiciously high degree of explanation. For "urban fringe" locations; the percentage of newly developed neighbourhood, the populations within one quarter of a mile, the condition of the road, and the competition within three blocks explained 64% of variance. Finally for "non-metropolitan" (presumably rural) sites pedestrian count is the most important factor followed by the percentage of customers who are pedestrians (-ve), the number of sales generators (other shopping) in the area, the percentage of single family dwellings within half a mile and the number of parking spaces (-ve). These factors explained only 37% of the variance in sales. Once again the results are unsatisfactory owing to the difficulty of providing an explanation for the observed effects.

Davies (1973) studied 72 shops belonging to a durable goods

chain. Independent variables covered aspects of location and shop attributes such as floorspace and shop quality. Measures of products, prices and many aspects of promotion were not included; presumably these remained constant for all shops in the chain. Once again the relative power of variables must be inferred from the order of entry since values of multiple R are the only statistical data which are reported. Davies derives three models; an overall model relating to the entire sample of 72 shops and two subsidiary models which relate to whether or not the shop is a on a corner site. No attempt is made to explicate the reasons for creating these subgroups or the advantage of this method over the alternative of including the site characteristics as an additional independent variable. It may be that a non-linear location effect is anticipated. The results of Davies' investigation are presented in Table 3.3. The overall model contains 8 variables although only five of these are stated by the author as being "significant". These five "explained" 71% of the variance in sales. Most important are "gross selling area" (floorspace) and rent and rates. The latter is assumed to represent "site and locational characteristics" since high rents might be expected to be associated with those sites on which retailers expect to do most trade.

Quite different equations were derived for the two subgroups, each accounts for a considerably higher proportion of the variance in sales than the overall model. For shops on intermediate sites total retail expenditure and store accessibility are most important and gross selling area is relegated to third place. Rent and rates does not appear in this equation at all. For corner sites gross

floor area is the principal variable, store accessibility is in second place. Rent and rates are least important of the eight variables.

While these results might appear to vindicate the use and choice of these subgroups it also seems likely that the differences noted arise simply from the large number of intercorrelations between the independent variables. These give rise to unstable variable coefficients in multiple regression analysis, consequently the results obtained may vary wildly from sample to sample. The higher strength of explanation which is achieved for these subgroups may simply reflect the fewer number of cases involved. Davies makes no attempt to provide a rationale for his findings, neither does he attempt to test the predictive validity of the formulations. It is simply noted with reference to the overall model that this firm has for many years been using floorspace and rent and rates as the main factors in assessing new sites.

The final study to be considered in this section is that carried out by Chell and Haworth (1983). This focusses on retail newsagents and their sales of magazines. The study was sponsored by a wholesaler and is unusual, therefore, in not being confined to shops in a single organisation. This factor did give rise to problems, however, since in an early phase of the study the investigators were apparently given inaccurate sales data. Chell and Haworth measured a wide variety of shop attributes ranging from the usual locational, competitive and demographic characteristics to product mix (whether toys, groceries, etc were sold) and assessments of the age and motivation of the shopkeeper. It is the view of the present author that although the motivation of the

newsagent might indirectly affect the customer it is not in itself a variable which is capable of directly acting upon the customer, similar observations would apply to the inclusion of age in this study. The investigators used sales of quality newspapers as a means of assessing sociodemographic status. In conceptual terms, however, this is less a measure of the location of the shop than of its effects on local consumers. These authors derive three models from subsets of the total sample, these are composed of shops located in rural, town centre, and suburban locations. No explanation is made as to why these particular subsets were chosen or why no attempt was (apparently) made to derive an overall model. Once again no figures are published for the relative strength of the variables included in the regression equations which are derived. It may be safe to assume however that variables appear in the equation in the same order in which they were entered into the stepwise regression analysis.

The results of this investigation are presented in Table 3.3. There is little correspondence between the three equations other than that locational variables (in the form of immediate environment, pedestrian traffic and road traffic) are apparently the most important factors followed by product mix and motivation. For rural areas Shop Index is most important, this represents the characteristics of the surrounding retail environment. Second most important is pedestrian traffic (PED), while TOY (whether toys are on sale) and PED multiplied by TOY are next. It is not clear why the presence of a post-office should have a detrimental effect on magazine sales as this equation would appear to indicate. For shops in town centres pedestrian traffic is most influential followed by

presence of toys, social demographic characteristics of customers and the motivation of the newsagent. For Suburban locations road traffic appears to be most important. In each case over 80% of the variance in sales is accounted for by the equations, this is a highly satisfsactory result in a purely statistical sense.

This review of investigations into the relative effect of various retail attributes on sales has revealed a number of fairly serious defects in nearly all of the studies. These affect both the utility of the published results and the confidence that may be placed in them. These deficiencies may be summarised as follows:

a) The failure to measure a full range of influences.

b) The failure to critically assess formulations derived from MRA in theoretical terms.

c) The failure to measure the predictive validity of the results.

The study by Fenwick, which is better than average in most respects, suffers from the additional defect that factor indices are derived without attempting to justify this is in terms of its substantive impact. Although many of the defects noted may arise from a lack of thoroughness on the part of the investigators concerned it seems likely that, to some extent, they result from a deliberate policy decision on the part of investigators with regard to publication of the research. This probably occurs at the behest of sponsors who wish to minimise the commercial value of such publications by limiting their usefulness to competitors.

Notwithstanding the above criticisms, a number of substantive

effects are apparent The most important effect is that, almost invariably, locational variables are found to play a predominant role in determining sales. This is the case even where considerable emphasis has been placed on the assessment of factors such as product mix and other non-locational factors.

In this section only limited emphasis has been placed on the theoretical justification of the substantive effects which have been observed. It is the author's view that to do so, even within a particular type of retailing, would automatically involve a wider set of concepts relating to how such effects vary between different retail types. These issues are considered in the following section.

3.3 Variations in Attribute Effectiveness Between Different Types of Retailing

Table 3.4 summarises the results of the various studies in a manner which indicates how such effects may vary between different samples depending upon the type of retailing in question. The most obvious method to distinguish between retail types is according to the range of products on sale. Studies are initially grouped according this dimension. An examination of this evidence suggests that strong differences exist between results for distinct types of retailing (i.e. local food shops versus supermarkets), similar types appear to give at least broadly similar effects. The present section considers a number of possible theories that may assist in explaining this phenomenon. Most important in this respect is the theory of product class, additionally dimensions such as food-nonfood and necessity-luxury will be considered. In the previous

section attention has been drawn to the fact that many investigators choose to consider locationally distinct subsamples separately in attempting to identify attribute effectiveness. This dimension is also considered.

3.3.1 Product Class

The concept of "product class" is concerned with the categorisation of particular goods into convenience, shopping or specialty (speciality) types. The American Marketing Association 1948 defined convenience goods as "those consumers goods which the consumer usually purchases frequently, immediately and with a minimum of effort". Shopping goods are "those consumers goods which the customer, in the process of selection and purchase, characteristically compares on such bases as suitability quality, price and style". Speciality goods are "those consumers goods on which a significant group of buyers characteristically insists and for which they are willing to make a special purchasing effort". Holton (1958) in a review of these definitions makes two important points; that the definitions lack precision and that considerable difficulty arises as to the nature of specialty goods. Noting that many items which are infrequently purchased are also purchased with a minimum of effort, Holton suggests alternative definitions for convenience and shopping goods to the effect that "convenience goods are those goods for which the probability gain from making price and quality comparisons among alternative sellers is thought to be small relative to the consumers appraisal of the searching costs involved". Shopping goods are those for which such a gain would be large relative to cost. Holton suggests that convenience

and comparison goods may be viewed as the extreme points of a spectrum along which all goods may be placed. The specialty goods category, as Holton notes, is different in nature from the other goods classes; apart from the inconvenience of its failing to fit into the above typography, specialty goods may apparently be brands as well as individual goods while "willingness to make a special purchasing effort" might apply to a very wide range of goods. Holton suggests this category overlaps the others and is to a large extent superfluous.

How helpful is this classification system in explaining how shop attributes might vary between different types of retailing? Three major problems arise in its application:

a) According to Holton the theory applies to individual consumer perceptions of individual products.

b) Products are apparently to be classified mainly according to consumer reaction although it is also noted that they may be frequently purchased and possibly subject to minimal price and quality variation between sellers.

c) There is no indication of how minimum effort might manifest itself in terms of consumer reactions to shop attributes.

On the first point little difficulty arises. Aggregate buying behaviour may be substituted for individual behaviour while that which applies to a single good may also apply to a group of products of similar type. The majority of consumers might regard all of the products sold by a given type of retailer (provided such

a retailer is a specialist) as convenience goods.

The second point requires more careful consideration. Later writers have placed greater emphasis on the characteristics of the goods themselves; McCarthy, for instance claims that convenience goods may be inexpensive, subject to unplanned purchase or emergency requirement as well as being those which the customer does not wish to spend much time shopping for. Nevertheless it is clear that the definitions used confuse cause and effect to a large extent. It seems to the present author that goods may be classified on a convenience-comparison spectrum (to adopt the Holton approach) according to their frequency of purchase, their purchase value, the homogeneity of the shopping environment for the good and any special product features. These causal factors determine the extent of the purchasing effort which customers typically exert. Before going on to consider how purchasing effort may manifest itself it will be useful to consider the causal effects in some detail:

> Frequency of Purchase - The more frequently an item is purchased the less effort a customer is willing to put into obtaining it, all other things being equal. It might be supposed that shopping for some items has a novelty or entertainment value which is reduced with familiarity until the activity becomes a chore; to be completed as quickly and easily as possible. Such an effect is consistent with the psychological concept of "habituation" in which our reactions to familiar stimuli become progressively dulled (Zimbardo 1979:303). Frequent shopping might therefore be considered to involve psychological costs to the consumer arising from the

tedium associated with often-repeated behaviour.

Purchase Value - Where the purchase or purchases to be made from a shop are of low value the gain to be made from search, whether in terms of price differential or additional suitability, may be perceived as insignificant relative to the extra effort required.

Heterogeneity of the Shopping Environment - The market for certain goods may be perceived as almost entirely homogeneous where prices and ranges offered are fairly standard (Cigarettes, magazines and newspapers probably fall into this category). In such a situation search is unlikely to occur.

Special Features - Some products may possess particular features which mean that they are often required in a hurry (i.e. sticking plaster) or may appeal to particular groups (such as the elderly) who are differentiated in terms of mobility.

Although it is not proposed to provide a precise system of quantification at this point, it is fairly clear that most types of shop would be capable of broad classification on the above scheme. It is now proposed to consider how the effectiveness of factors affecting shop sales may be affected by differences in shopping effort.

Low shopping effort implies minimal travel and low priority being placed on prices and choice. Examination of the summarised substantive results, presented in Table 3.4, reveals that, for both newsagents and small food shops, location factors such as

pedestrian traffic, road traffic and location relative to home are the principal determinants of trade. If it is accepted that both newsagents (by virtue of homogeneous products and prices) and small food shops (by virtue of the customer's requirement for topping up between major shopping trips and for perishable items such as bread and milk) are both concerned with "convenience" products it is clear that this classification system may provide a rationale for inter-type variations. The variables associated with these retail types are precisely those which one expects to be important where shopping effort is low. Purchasers simply visit those shops nearest to home or alternatively those which are located close to their routes when they are engaged in other activities. Clearly however the system is far from being precise and quantification of the substantive effects involved is not possible on the basis either of this theory or the empirical research which has been discussed in this chapter.

3.3.2 Other Classification Systems

While product class is a fairly sophisticated type of theory, other systems appear to exist mainly by virtue of being employed at various times as a convenient analytical tool. A major categorisation system of this type is that which divides products into food and non-food. Although this distinction is made primarily on the grounds that food shops tend to be fairly easily identifiable, it is apparent that distinctive features are associated with each type. Hedderwick et al (1979), for instance, points out that between 1961 and 1978 (a period of steadily growing real incomes) food sales grew by a mere 6.8% compared to 58% for

TABLE 3.4 Comparison of Results for Attribute Effectiveness Studies with Breakdown by Product Mix.

Type	Source	Principal Attribute	Secondary Attribute
Supermarket	Woman 1983	Price	Range of choice
	Hansen & Deutscher 1977	Cleanliness	Low price
	Hallsworth 1982B	Prices	Layout
	NCC 1982	Product range	Location
Small grocer	Jones & Mock 1984	% apartments	% customers who arrive on foot
		% new development	Competition
		% new development	% single family dwellings
		% new development	Population
		Pedestrian count	% customers who arrive on foot
	Watkin 1976	Convenience	Friendliness/ personal service
	Hudson 1974	Convenience to home	Price level
		Price level	Convenience to home
	NCC 1982	Location	Product range
Magazines	Chell & Haworth 1983	Attractiveness of adjacent shopping	Pedestrian traffic
		Pedestrian traffic	Whether toys are sold
		Road traffic	Attractiveness of adjacent shopping
Durable Goods	Davies 1973	Floorspace	Rent and rates
		Urban retail expenditure	Accessiblity
		Floorspace	Accessiblity
Menswear	James, Durand & Dreves 1976	Quality	Price

non-foods. These authors suggest this is evidence of the inelasticity of demand for food. Although this does not constitute evidence that shop choice behaviour is in itself affected, such a possibility seems likely. Retail and Distribution Management (Jan/Feb 1983) notes that the diversification of supermarkets into non-food has now to some extent been reversed in favour of expansion into fresh foods and this presumably does indicate some incompatibility in sales methods between these goods types. Further evidence is provided by Davis (1982) who observes that in the USA there is a tendency for large supermarkets to place less emphasis on non-foods. Lee and Kent (1975) found that customer loyalty to superstores tends to be confined to food lines.

Another dichotomy between food and non-food lies in the temporal distribution of these sales. Non-food shopping seems to be concentrated at the week-end with 33% of such sales being made on a Saturday. Conversely, food sales although occuring predominantly towards the end of the week are spread more or less evenly between Thursday, Friday and Saturday with almost 70% of sales occuring then (Institute of Fiscal Studies 1986). It has been suggested that this may constitute evidence that non-food shopping is a leisure activity while that for food is regarded as a "chore". Such a distinction might lead to the conclusion that the degree of stimulation present in the shopping environment (displays etc) might take on greater importance for non-foods. Such conclusions are highly speculative given the present state of knowledge however.

Although to some extent the differences noted between foods and non-foods might be attributed to the convenience status of food

and the comparison status of most non-foods, it also seems possible that these differences are linked to those existing between "essential" and "luxury" items. Essentials are by their very nature those items which are subject to low elasticity of demand. Luxuries are more discretionary in nature. Hedderwick et al (1979) noted that while Marks and Spencer control about 30% of the market in underwear independent retailers, by contrast, account for only 13%. For outerwear, however, the position is reversed. These authors (a firm of investment brokers) explained this situation in terms of the more discretionary nature of many outerwear purchases and suggested that the merchandising methods of firms like Marks and Spencer are most suited to the "commodity" type of product. The trading policy adopted by this leading retailer at that time (plain high quality products, low emphasis on display), and since modified to some extent, may have been unattractive to shoppers seeking an element of entertainment in shopping for luxury items.

The categorisation systems considered so far are product based. It is plausible that consumers purchasing decisions concerning bread, for instance, should be made on a different basis to those for durable goods and that this should be reflected in the effectiveness of factors affecting sales. Location is considered here by virtue of the fact that several studies examined earlier utilise location characteristics in order to subdivide their samples prior to analysis. These studies have been confined to particular retail chains, or types of business, and therefore do not cut across product divisions. Apparent distinctions between locationally disparate groups may therefore apply only within a particular product-related category.

It will be useful to consider the manner in which location might influence consumer behaviour. Firstly it may be that the catchment areas for different centres contain populations with distinct socioeconomic characteristics which affect buying behaviour. Low income groups may, for instance, give priority to price or locational convenience. More affluent groups may prefer quality. A second explanation may be that consumers behave differently according to the type of area in which they make a purchase. When shopping in town they may favour shops close to pedestrian routes while in outlying districts a they may choose a shop which is located adjacent to a main roadway where car parking is provided.

Three types of location categorisation system are employed. Davies classifies his sample as "intermediate" or "corner" according to immediate environment. No explanation is made of why it is that urban retail expenditure should take priority in the case of intermediate sites while gross floor area is more important for those on corners. It may be that the latter factor may more readily influence visibility to passersby. Jones and Mock considered central city, suburban and old strip sites, urban fringe and non-metropolitan sites. They found that apartments (central city) gave way to new developments (suburban, old strip and urban fringe) and finally to percentage of pedestrians among clients (non-metropolitan) as the most important factor when considering progressively less central shops. No explanation for this progression is apparent. Chell and Haworth instituted a simpler system of classification into rural, suburban and central city types, they found that suburban sites are characterised by a

TABLE 3.5 Comparison of Results for Attribute Effectiveness Studies with Breakdown by Location Type.

Type	Source	Principal Attribute	Secondary Attribute
City/town centre	Jones & Mock 1984	% apartments	% customers who are pedestrians
	Chell & Haworth 1983	Pedestrian traffic	Whether toys are sold
Suburban	Chell & Haworth	Road traffic	Attractiveness of adjacent shopping
	Jones & Mock	% new developments	Competition
Rural/non metropolitan	Chell & Haworth	Attractiveness of adjacent shopping	Pedestrian traffic
	Jones & Mock	Pedestrian count	% customers who arrive on foot

greater importance being attached to the type of road on which the shop is located while pedestrian traffic and nature of the immediate shopping environment were most important for city centre and rural types.

It might be argued that a more convincing categorisation by location might comprise a single quantifiable dimension. Suitable candidates might include centre size, centre type (perhaps based on a classifaction such as that of Berry (1967), see Chapter 5) or the sociodemographic characteristics of the catchment area from which it draws its trade.

Overall it appears that product class must be considered to be the dimension most likely to affect shop attribute effectiveness. Other dimensions such as food-non-food and luxury-necessity (demand elasticity) may also be important. Location effects would appear to be most likely to apply as an additional confounding factor within such categories. No reliable evidence exists as to the nature, degree or cause of such effects.

3.4 Conclusion

The present chapter has considered the current state of knowledge regarding the the factors which affect shop sales. A large number of factors are identified as being capable of affecting customer decisions regarding the choice of shop. In many instances this capability has been empirically demonstrated. Most of the variables concerned represent aspects of the marketing mix of a shop. It is argued that other influences bear only indirectly on the consumer.

Of considerably less certainty is the relative effect of these variables and the precise quantitative impact of a given variable even within fairly narrowly defined types of retailing. This is the case both as a result of methodological weaknesses in the research which has been carried out and in the sketchiness of published results. The latter presumably arises due to the deference of investigators to their commercial sponsors. A number of theories exist which might contribute to an understanding of how the effects of the various factors differ between distinct types of retailing. The most promising of these appears to be the theory of product class. It is not possible at present to utilise this theory, other than in the broadest sense, owing to the weaknesses in substantive material outlined above.

The forgoing resume clearly indicates that knowledge in this area is at a fairly rudimentary stage of development. It appears likely, however, that this knowledge constitutes a suitable basis and theoretical framework for an investigation of retail attribute effectiveness that might achieve the objectives set out earlier. The remainder of this thesis is concerned with a description of the design, specification, results and implications of such a study.

CHAPTER 4 METHODOLOGICAL ISSUES IN THE DESIGN OF THE STUDY

Summary

4.0 Issues discussed relate to the choice of the appropriate research problem, research design, conceptual framework, hypotheses, population, sample, data collection methods and data analysis.

4.1 Existing theory is not of sufficient quality or comprehensiveness to justify reformulation of the original objectives of the investigation prior to carrying out the empirical work.

4.2 Issues to be resolved concerning research design are the choice between experiment and survey types, longitudinal and cross-sectional timescales and single and multiple phases.

4.3 The process of retail selling may be represented as a simple causal chain from retailer, through the marketing mix of the shop to the consumer's attitudes and buying behaviour. The main approaches to measurement focus either on the marketing mix and shop sales or alternatively on the consumer and his/her attitudes to the shop.

4.4 Hypotheses may be precisely specified or broadly framed depending on the extent to which the investigation is exploratory in nature.

4.5 Choices in determining population focus on the extent to which this should be limited in terms of kind of business (KOB) and geographical area covered.

4.6 Sampling methods may be random or non-random. Semi-random methods represent a compromise and assume the advantages of representativeness while permitting some economy of resource inputs.

4.7 Data collection methods may rely on either the investigator or the subject to report the data collected. Investigator-reporting methods may be operated without the necessity for subject aquiescence in (or knowledge of) the study and are not subject to reactive error; a risk which is thought to be particularly severe in retailing. Retailing lends itself to the use of covert observation owing to the public nature of most of the activities involved.

4.8 Data analysis may be impressionistic or statistical. The latter may be univariate or multivariate in type.

4.0 Introduction

The present chapter considers issues relating to the design of the study and in particular to the choice of methods employed. The range of issues to be resolved is presented in Figure 4.1. First the precise research problem is formulated, then the appropriate research design conceptual framework, hypotheses, population, sample, data collection methods and the analytical procedure are selected. Although many of these issues are interdependent, since making a choice in one may limit the scope for choice in another, each facet is considered separately. A problem-solving approach is used. The range of available alternatives is first identified. An evaluation is then made of their relative strengths and weaknesses given the objectives of the investigation, the contribution of existing research and the resources available..

4.1 The Research Problem

The original objectives of the present investigation are set out in the introduction to the thesis; it is argued that a viable method of providing assistance to the smaller retailer would be to provide information (rather than a technique for obtaining such information) of a type that would assist in making decisions about pricing, product mix, location and promotion. Such information would detail the relative effectiveness of alternative strategies.

TABLE 4.1 Methodological Issues to be Resolved in the Design of the Study.

Aspect of Study	Range of Options
Research Problem	Specify according to original objectives/Modify or refocus to take account of existing theory or empirical work.
Research Design	a) Experiment/Survey of natural variability. b) Longitudinal timescale/Cross-sectional timescale (snapshot). c) Single phase/multiple phase.
Conceptual Framework	Measurement of shop attributes and sales/ measurement of consumer attitudes/measurement of retailer attributes/measurement of individual consumer behaviour.
Hypotheses	Exploratory/precise.
Population	All shops/Limited kinds of business/Limited geographical area.
Sampling Method	Non-random/Random/Semi-random.
Sample Size	Case study/Small sample/Large sample.
Data Collection Method	Subject reporting/Investigator reporting (overt)/ Investigator reporting (covert).
Operational Definition	Objectivity/Subjectivity Single measure/multiple measure.
Data Analysis	Impressionistic/Univariate statistical/ Multivariate statistical.

The main issue here is to what extent existing research suggests these objectives should be reformulated or refocussed prior to carrying out the empirical phase of study.

The examination of existing literature on the effectiveness of marketing strategies, reveals that although a good deal of information exists, none of this is particularly reliable or particularly sophisticated. Only the vaguest indications are provided as to which strategies ought to be preferable in a given situation. In consequence of this, the objectives of the empirical study remain very much those of the investigation as a whole; to quantify the effects of various marketing methods in terms of their effect on sales performance. It is not considered advantageous at present to attempt to refocus the research by limiting either the range of variables under scrutiny or the range of shops to which such results may be applicable. In the absence of any currently existing overall framework of marketing mix effectiveness it is considered that to do so would seriously narrow the importance and impact of any results and limit the scope for meaningful theoretical development. Later in the study design process these matters will need to be considered again, though from an operational rather than a conceptual viewpoint.

4.2 Research Design

Research design is concerned with the specification of the general type of study to be undertaken. The main issues fall into three categories:

a) Experimental vs Survey - Whether the research should take the form of an experiment (in which certain variables or conditions are manipulated to determine their effect on a set of subjects) or whether it should take the form of an examination of existing variability between subjects in naturally occurring situations.

b) Longitudinal vs Cross-sectional - Whether the study should examine changes over time or simply be a snapshot of activity at a given moment.

c) Single vs Multiple Phases - Whether the study should comprise a single look at a given situation or a number of separate views of the same phenomena.

In order to resolve these issues it is necessary to consider the advantages and disadvantages of the various approaches. The main advantage of experimental work is that it enables an investigator to demonstrate clearly the strength of the link between an event and its cause. The direction of causation is not in doubt and variables may be manipulated to any required degree. The main disadvantages are that the observed effects are always to some degree artificial; even where an experiment is carried out in a natural setting the process of manipulation may introduce an element of artificiality which may confound results. A further disadvantage is that the partipants being studied is limited to those who are willing to participate in the study. In the present context this means those shop operators who are willing to take the

risk of disruption to their normal trading in the interests of the acquisition of potentially useful knowledge. Experimental studies have almost exclusively been confined to measurement of the effects of display techniques within a given shop. Such limitations of sampling give rise to doubts about the extent to which the results obtained may be generalised. A further disadvantage attaching to experimental work is that an experiment in a single shop may be extremely time consuming. This limits the number of shops that may be studied within a given resource allocation.

Surveys have the advantage of always representing a natural situation (although clearly behaviour may be altered to some extent by the data collection process itself; see section 4.7). A fairly large sample of shops or consumers may be studied within a limited resource budget since no effort needs to be made to set up the situations themselves. As a result of the more limited degree of interference necessary and the consequently more limited input required by participants (if any is required at all) more ready access to subjects is usually enjoyed by survey investigators.

The survey method suffers from a number of disadvantages. Because a natural setting is required data may be contaminated by the effects of external factors without the knowledge of the investigator (this is compensated to some extent by the greater likelihood of such contamination being self-cancelling due to a greater degree of randomness in the sampling procedure). Variability is limited to that which occurs "naturally" within the environment being studied so that it may not be possible to detect the effect of variables with respect to which the sample is largely

homogeneous. A study using this design would, for instance, be unable to measure the effect of lowering prices beyond the limits of current retail practice, a potentially serious defect where prices are fairly homogeneous for all shops. The establishment of causality may also be problematical since a survey is only able to detect which variables "move together" rather than being able to demonstrate that one changes in response to the other.

The research problem focusses on retailing in general, it is therefore considered that an experimental design would involve too great a sacrifice, in terms of the representativeness of the sample which could be studied, to be a viable alternative. The disadvantages of the survey method are considered to be fairly limited in contrast to the advantages. An attempt is made to limit the effect of these by careful choice in other aspects of the study design; the effect of extraneous factors, limited variability and lack of evidence of causality may be overcome by utilising a large sample and adopting a methodical approach to data analysis (see later sections).

The main advantage of a longitudinal study, over the cross-sectional or snapshot type, is that it facilitates an analysis of the dynamics either of consumer changes over the years (such as those outlined in Chapter 2) or it can illustrate how consumers respond to changes in the strategies adopted by a given shop. The former might be considered to introduce an unneccesary degree of complication in view of the fact that the investigation commences from a fairly modest knowledge base. The latter is of particular

interest because the retailers primary interest is in the effect on consumer behaviour of making changes in the marketing mix. The main disadvantage of longitudinal studies is that by definition they require large time inputs and are limited to the study of phenomena which are subject to sufficiently large changes. Given the limited resources available to the present study and the rather rudimentary state of present knowledge it is considered that the study of dynamic effects would be inappropriate at the present time and that the cross-sectional approach should be adopted.

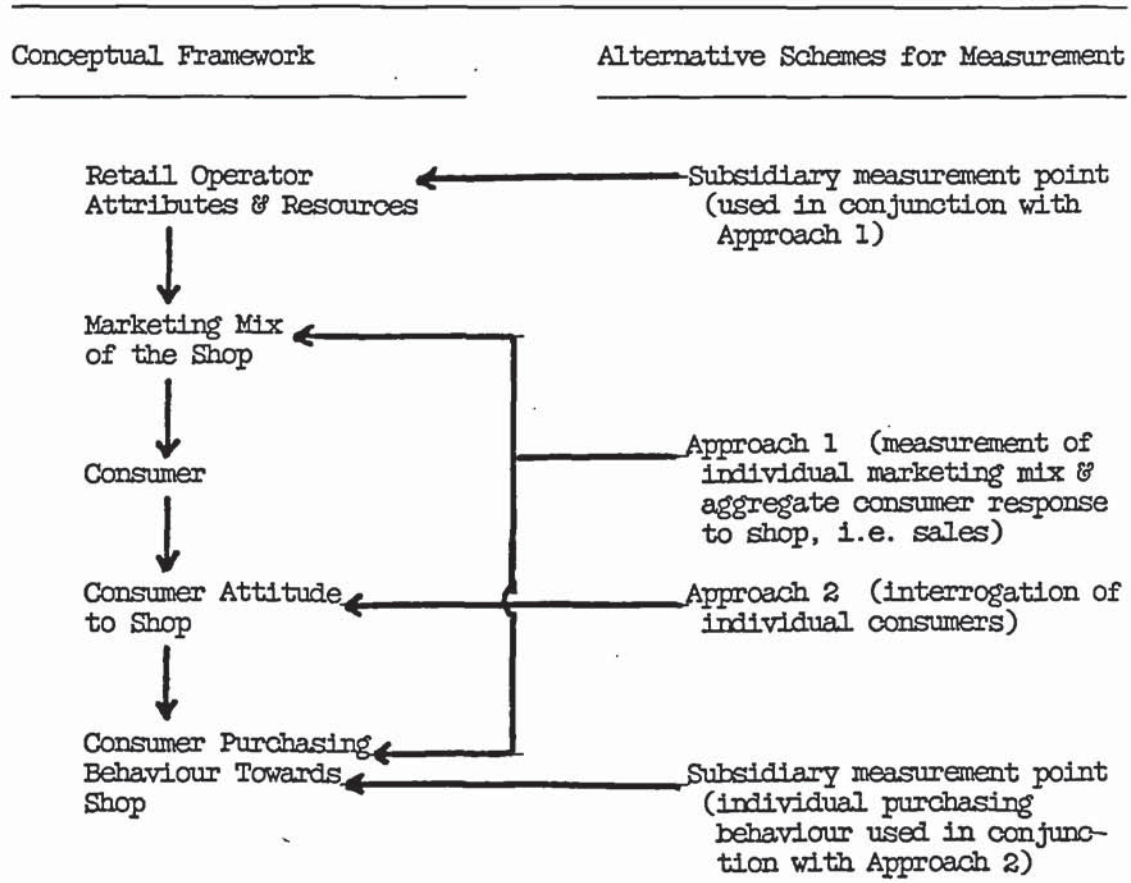
The issue of the single phase versus the multiple phase study is once again a case of balancing resource availability against the desirability of a more comprehensive, or accurate, result. Multiple phases allow the development of more reliable and valid measurement systems and they may facilitate hypothesis development and subsequent testing. Clearly, if all resources are directed into a single endeavour a larger sample of subjects may be studied with greater deliberation than if such efforts are spread over several separate efforts with modifications being made between each phase. Against this must be balanced the risk that mistakes in conceptualisation may not be apparent at the design stage and that these may prove fatal to the results. In addition, findings based on a single instance must always be less trustworthy than those which have been shown to capable of duplication on several occasions. In the latter case there is a reduced risk that unforeseen influences, clerical errors or seasonal effects have contaminated the results. Notwithstanding the resource limitation,

it is considered that the pioneering nature of the present study makes some form of pilot work desirable. It also leads to the creation of a separate data set on which the final results (obtained in subsequent efforts using larger samples) may be tested.

4.3 Conceptual Framework

A conceptual framework is a representation of the assumed relationship between concepts used for the investigation of a given phenomenon. The research problem outlined above specifies an investigation of the effectiveness of retail marketing methods. A simple model of the assumed relationship between the retail operator, his/her marketing strategy, the consumer, the consumers attitudes and the consumers buying behaviour is represented in Fig. 4.1. The retailer's policies and resources and some other external factors (such as planning departments) determine the retail marketing mix (pricing, product mix, location and promotion), the retail marketing mix acts on the consumer who forms a given set of attitudes towards the shop in question, these attitudes in turn determine the consumer's behaviour towards a given shop in terms of whether a given purchase will be made there or not. This model is admittedly an oversimplified and deterministic view of what is generally accepted to be a complex and probabilistic process for the individual consumer. However, the main significance of this model to the present research is that it explicates two key assumptions that underpin the study, these are as follows:

FIG. 4.1 Schematic Representation of Concepts Involved in the Assumed Relationship Between Retailers and Their Customers Illustrating Alternative Schemes for Measurement.



The causal chain illustrated is highly oversimplified in the sense that no a account is taken of the role of external factors such as income, individual pressures on the consumer or the effect of competition. All of these might be expected to affect the individual consumers attitude and behaviour towards a given shop. The present research however is concerned only with aggregate consumer behaviour towards all shops of a given type, individual differences therefore cancel out and consumer attitude to a given shop takes account only of its position (in terms of marketing mix) relative to other shops. All measurements refer to a fixed point in time.

a) Marketing mix variables are the only aspect of the shop which is capable of directly influencing the consumer in a systematic way. Other factors acting on the consumer are random in nature and therefore self-cancelling in the aggregate.

b) That the direction of causation is from the retail marketing mix to the consumer, since the consumer cannot directly influence the marketing mix.

Having outlined the assumptions underlying the investigation it is necessary to consider which of the entities concerned should be studied. The decision is heavily influenced by the requirement that the concepts chosen should be capable of adequate measurement, this consideration has bearing both on the issues considered here and on other matters such as data collection methods (see later section).

Two main approaches have been taken in past investigations of marketing method effectiveness. These were discussed in detail in Chapter 3. The first approach involves an examination of the marketing mix of a shop and an assessment of consumer behaviour in terms of the value of aggregate purchases (i.e. the turnover of the shop). This method has the advantage that variables representing both cause and effect are measured directly. Disadvantages lie in the difficulty of gaining access to data and the necessity for the investigator to be aware, in advance, of the salient range of factors in order that these may be measured. Further difficulties arise in establishing the causal link between a given variable and

purchasing behaviour. With regard to access it is notable that the nature of the study and particularly the requirement for information on sales turnover has in the past meant that a given study may be confined to a single chain organisation thus limiting both generalisability and the extent to which results may be disseminated.

The second approach focusses on the consumer rather than the retailer and involves measurement of consumer attitudes. The effectiveness of marketing variables is inferred indirectly from these data. Such methods raise particular problems in the sense that data collection methods are automatically limited to those involving subject self-reports with the consequent large risk of error associated with such techniques (see section 4.6). A further disadvantage attaching to this method is that a precise quantification of the effect of a given variable is unlikely to be possible from such a study. Advantages of this type of study are the fact that the information required is unlikely to be regarded as confidential by potential respondents and the clear link which may be demonstrated between cause and effect. The method is particularly suited to exploratory research since the type of questioning procedure used may permit consumers to suggest salient influences of which the investigator was not previously aware.

The potential range of measurement schemes is not confined to the two basic approaches outlined above. Some investigators have measured factors relating to retail operators in addition to marketing mix variables. Chell and Haworth (1983) included measures of motivation and age in their study, other suitable factors might

include stock control systems or attitude to, and provision for, employees. Measurement of retailer attributes is of particular advantage where it is not possible to assess the marketing mix variables directly or where an effect is difficult to assess (in the case of friendliness for instance). Disadvantages of studying the retailer are that measurements are being made one step removed from the interface on which the study problem is focussed. Moreover, the information gained is of little interest where, for instance, the recommendations arising from the study are that an operator should "be more highly motivated".

Alternative approaches to studying the consumer involve assessment of actual buying behaviour in addition to attitudes (one well known approach is the "shopping diary" in which customers log all purchases they make over a given period of time). This information is used to validate the inferences made from attitudinal data.

Undoubtedly the most satisfactory approach to the investigation of marketing mix variable effectiveness involves measurements at each stage in the process detailed in Figure 4.2. Consumer attitudes to shopping for a given product might then be used to support a particular rationale for actual behaviour measured at the shop itself. Such an approach would fall within the ambit of what has been termed "triangulation" (Campbell and Fiske 1967). This approach reduces the risk that errors associated with particular measurement processes or faulty conceptual assumptions will contaminate the results. Unfortunately the resources available to the present study do not permit this type of approach to be

used.

It is considered that an approach based on the measurement of shop attributes and aggregate consumer purchasing behaviour at the shop is most appropriate given that:

a) A large number of aspects of the marketing mix have already been identified and it seems reasonable to assume that these represent an exhaustive list of all the major influences.

b) The problem of access, which has been identified and which seems likely to limit sample size and representativeness, could be overcome by the development of suitable data collection methods which would obviate the necessity for retailer cooperation in the study (this issue is considered further in Section 4.7)

The conceptual framework is concerned with assumed relations between concepts. The following section deals with the nature of the hypothesised relations between variables representing these concepts. Such relationships are put to the test during the course of the study.

4.4 Hypotheses

An hypothesis is a statement of the relationship between concepts that is capable of being refuted during the course of an investigation. Where an hypothesis is not refuted it is said to be "supported". The main issue to be resolved with regard to

hypotheses in the present study is the degree of precision with which they are stated. This reflects the extent of exploration involved. At one extreme no testable statements whatever are posited. Such a study is entirely exploratory in nature. This type of approach is appropriate where little previous work exists in the particular field of study and the investigator wishes to avoid imposing any order whatever on the subject matter prior to the commencing the inquiry. Investigations of this type are unlikely to produce any precise quantitative formulations. At the other extreme precise quantitative statements are made about the interaction of operationally defined variables. This is appropriate where a large body of investigative material and/or theory exists in support of such hypotheses. The main advantage of this type of approach is that empirical confirmation of preconceived hypotheses is indicative of a degree of veracity far in excess of that which attaches to the findings of a single exploratory study.

Most studies fall between these two extremes; preconceived hypotheses exist but these are quite vague. It is considered desirable to generate more precise hypotheses during the course of the analysis. Such studies are both exploratory and confirmatory in nature. Their main advantage is that they facilitate building on a fairly insubstantial knowledge base. The main disadvantage is that vague hypotheses are far more likely to be subject to chance confirmation than precise ones and failure to detect faulty hypotheses may lead to even more unsatisfactory statements being subsequently posited..

In the present study it is clearly impractical to make

precise hypothetical statements from the outset. The current body of knowledge is not sufficiently developed to permit this; a point which has been made fairly forcefully in the previous chapter. Any such statements would be subject to a high probability of refutation. Neither, it seems to the author, is there any justification in adopting an exclusively exploratory approach. A large number of studies to date appear to have followed this approach with a large degree of success (if this may be judged from the number of variables which are thought to affect shop sales). This being so it is most sensible to adopt an approach in which fairly vague hypotheses take the form that such and such a variable affects trade to a measurable extent and that collectively such variables account for a vary large proportion of the variation in sales between different shops.

4.5 Population

A population is a set of individual entities which are subject to investigation and to which the research findings are assumed to be applicable. In the present research the unit of population to be investigated is the shop (see sections 4.3 and 4.7). The main issue to be resolved in this section is whether all shops should constitute the population or whether this should be limited in some way. The main advantages of investigating all shops are that the findings are of interest to a wide constituency of retail operators and other parties. The main disadvantage is that it appears likely that considerable differences occur between

different types of retailing according to the type of product involved (see Chapter 3) the huge variety of retail kinds of business may limit the accuracy of the results for any given shop, especially taking into account the limitations to sample size (see section 4.4). A further disadvantage of an unlimited population is that huge resources may be needed in order to cover suitably large geographic area. Although the research problem outlined does not specify any limitations on population, the above discussion clearly indicates that resource limitations make these inevitable. The approach taken is to restrict the study to what is practically feasible but to introduce limitations in such a way as to minimise their impact on the potential for the development of a general theory of marketing mix effectiveness. It is nevertheless accepted that in a strict sense the results quoted apply only to those populations specified.

Restrictions on population take two forms:

a) The type of retailing (as determined by the nature of the products on sale).

b) The geographic area covered.

Since it is likely that the effectiveness of particular retail attributes will vary according to the type of product sold, it is desirable to study a retail type involving a fairly narrow range of products. These need to be of a type for which a fairly large number of shops occur within a limited geographic area in order to facilitate data collection. Such shops should be homogeneous in

terms of market segment served, product class and elasticity of demand (see Chapter 3.3). More than one type of retailing should be studied and the types selected should contrast to a large extent in order to maximise the potential for the development of a theory of effectiveness differentials between retailing types. The requirement for contrast is to some extent hampered by the lack of any current comprehensive theoretical or empirical information as to important determinant dimensions.

Initially greengrocers were selected for study, both for the above reasons (ubiquitous specialist) and for the additional reason that independent retailers are particularly strong in this kind of business. It was considered advisable to reserve the choice of further retail types until completion of the preliminary investigation of greengrocers.

The most rational approach to geographical limitation, and that followed here, is that of convenience. Restricting the study to an area within easy reach of the investigator's base permits maximum data collection within a given resource. The main disadvantage is that the area chosen may display special characteristics with the findings may not be applicable elsewhere. Although this is a fairly serious limitation such a course was nevertheless felt to unavoidable. In view of this, no claims are made as to the extent to which the findings may be generalised outside the geographic area studied. However no serious divergence from the findings occurred on the basis of centre type or size and there is considerable convergence between the two phases of study (which covered different geographical areas). This suggests that

the conclusions of the study may well prove to applicable in a wider sense.

4.5 Sampling

Where populations are too large to permit data to be collected on all their component entities a representative group or sample is substituted. The issues needing to be resolved are choices of selection method and sample size.

4.6.1 Sampling Methods -

Sampling methods may be crudely categorised as follows:

a) Non-random - Subjects are selected according to criteria such as prior acquaintance with the investigator, geographical location or willingness to participate.

b) Random - Subjects are selected entirely at random from the population being studied; each member of the population being studied has an equal chance of being included.

c) Semi-random - Subjects are selected partly at random and partly according to an arbitrarily determined criterion or crude segmentation process. Major methods are:

i) Stratified sampling - The proportion of the population conforming to certain criteria is predetermined by the investigator, subjects are selected at random until the correct proportion is

present in each category.

ii) Geographical Cluster Sampling - Subjects are selected at random from within a given geographical area. The areas to be studied may themselves be selected at random to maximise representativeness.

The relative merits of these different sampling methods, like most issues of study design, centre around a trade-off between what is theoretically desirable and what may be achieved with the resources available. Non-random samples tend to maximise the sample size achievable with a given set of resources, due to the fact that any willing participant is automatically included. Size is, however, achieved at the expense of representativeness. A sample composed mainly of the investigators personal friends and family, for instance, could hardly be expected to reflect the characteristics of the population at large. The investigator is unable to make statements about a wider population from the results obtained.

Random samples, by contrast, are usually much more representative of populations from which they are drawn. In the case of very large samples (over 1,000) they may reflect population characteristics almost perfectly regardless of the size of the population itself (which may consist of millions of potential subjects). The most important aspect of randomness is that it permits a quantification to made of the probability that unrepresentativeness within the sample has given rise to a given observed effect. Statistical significance, a measure of the probability of sampling error, applies only to randomly selected

samples. Random samples usually require the compilation of a sampling frame or list of potential subjects in the population. This may be tedious or even impossible to achieve.

Semi-random samples attempt to combine some of the advantages of random samples with the economy of non-random types. Stratified samples allow important dimensions to be adequately represented in a sample, this may be particularly valuable in situations where a sample is very small or where an important group or segment represents a small minority within the population. Such a group would have a low chance of adequate representation in a random sample. A major disadvantage is that it is necessary for the investigator to know in advance the important dimensions to use in determining the relevant strata and also the correct proportion of subjects that should be present in each.

Cluster samples facilitiate economy by limiting the sample to groups of subjects exhibiting a particular characteristic. In cluster sampling the population is divided into clusters or groups according to some particular dimension, selection among clusters is made at random. All the entities composing a cluster may then be included in the sample or further random selection may be carried out. Where clustering is on the basis of geography, an investigator may travel to a given location and deal with several subjects with minimal further travel being necessary. By comparison, a truly random sample might involve considerable travel between subject locations with correspondingly high resource costs in terms of time and fares. An additional advantage is that cluster sampling may dispense with the need for a sampling frame. The main disadvantage

of cluster sampling is that representativenss may be seriously affected if the dimension used as the basis for clustering turns out to be salient to the issue under investigation. This is important because the variability in the sample along the clustering dimension is likely to be less than that of the population as whole.

In general, investigators tend to assume that semi-random samples are entirely representative. This is only justified where the imposition of arbitrary selection does not in fact interfere in the results obtained.

In the present study it is clear that non-random sampling is not appropriate to the stated objectives owing to the requirement for generalisability of quantitative results. Neither is random sampling particularly suitable since travel costs would exceed funds available if a sufficently large sample were used. Additionally the absence of any existing sampling frame (a list of shops in the area covered) means that such a list would need to be compiled by the investigator prior to commencement.

Semi-random sampling, by contrast, offers the possibility to considerably reduce travel costs without necessarily interfering with representativeness. Geographical cluster sampling would therefore appear to be most appropriate.

4.6.2 Sample Size -

A sample may range in size from one subject to the entire population being studied. Three basic classifications are possible:

a) Case Study (1-5) - Where a single subject is studied or the sample is very small. In such cases a random sampling is superfluous since unless a population is very small such a sample could not possibly represent even its major characteristics. Case studies are appropriate to investigations in which a single subject needs to be studied in great depth and where the information to be obtained is largely qualitative in nature. They are not suitable where it is intended to obtain quantitative information about a large population

b) Small Sample (5-100) - Slightly larger samples enable fairly subtle phenomena within the population to be studied. A small effect has less chance of being the result of sampling error as sample size increases. Larger samples also facilitate the use of multiple regression analysis (MRA) since there is much less likelihood that the terms in an equation will approach the number of cases (this inevitably results in zero degrees of freedom and 100% explanation of variance). A larger sample is of additional advantage where large numbers of variables are being studied since the risk of error due to chance combinations of independent variables is reduced where the number of cases exceeds the number of variables by a large margin (Alpert and Bibb 1974). As sample size increases the total resource which may be devoted to each case becomes smaller and the quality and quantity of information which may be gathered on individual cases is

reduced.

c) Large Samples (100+) - Samples may range in size up to the limit of the population, however, as sample size approaches 2,000 units additional representativeness with each additional unit becomes almost negligible and samples only rarely exceed this figure by large margin. Although very large random samples may facilitiate investigation of very small effects in the population, the total resource which may be devoted to each case becomes smaller as sample size rises and the proper investigation of individual cases (i.e. error free data collection) may not be possible.

In the present investigation a case study would clearly be inappropriate owing to the requirement for quantitative information about a sizeable population. The number of variables being studied is also fairly large (see section 4.3). Although a large sample would be desirable if was not considered possible to study more than 100 shops of each type with the resources available. Since it is unlikely that the total number of marketing mix variables can be reduced much below 40 (even after the pilot work), a small sample of between 50 and 100 shops per KOB in the main phase of study (and around half that number in the pilot phase) would appear to be most appropriate.

4.7 Data Collection

Issues relating to data collection mainly revolve around the

type of methods used. The principles by which variables are operationally defined are also considered.

4.7.1 Collection Methods

Data collection methods available to the investigator include much-used techniques such as interviewing and questionnaires as well as more esoteric types such as observation, trace and archival methods. Each method has a number of possible variations. It is intended to examine the general advantages and disadvantages initially, before going on to consider issues with specific relevance to the present study.

The available methods may be divided into two basic types according to whether the subject or the investigator is responsible for reporting the data.

Subject-reporting methods include questionaires, interviews and some archival methods. One major advantage of this approach is that the respondent may have the opportunity to suggest to the investigator which concepts are salient to the problem being investigated without it being necessary for the investigator to determine this in advance. It is often the case that the simplest way to obtain information is to interrogate those most directly involved.

Disadvantages of subject reporting methods arise as a result of the reaction of the respondent to the knowledge that s/he is being studied, a number of problems have been identified:

a) The composition of the sample may be affected as a result

of the requirement that the respondent agree to being studied. Where the proportion of non-respondents is large, what was intended to be a random sample is in fact self-selected. Volunteers may differ in some important respect from refusers and this possibility detracts from the theoretical validity of the sample (Goode and Hatt, 1952). McDonagh and Rosenblum (1965) present evidence that this objection is overstated and that even partial response may be highly representative. The present author would argue that much depends on the nature and purpose of the study and the kind of questions being asked. The effect of non-response is, at best, an unknown quantity.

b) The measurement process may act as a change agent. A subject being questioned about an issue may begin to form an interest or an opinion directly as a result of being investigated. Those asked about a particular activity and their motives for acting in certain ways may pay more careful attention to such activities in future. The main threat from this source is to longitudinal studies and to experimental studies where pre-treatment and post-treatment measurements are taken from the same group of subjects.

c) The respondent may falsify responses perhaps out of fear of appearing stupid or socially inferior. This effect has been termed the "guinea pig effect" (Webb et al. 1966) it is also known as "reactive arrangement" (Campbell and Stanley, 1963). A similar effect also occurs when the subject feels

that the research is not legitimate in some way and tries to sabotage it (Bailey 1982).

d) A respondent may adopt a particular role with regard to the research that results in only one facet of behaviour being revealed (Webb et al. 1966).

e) Response sets are natural biases that may differ in strength between individuals Sletto (1937) found that most people agree with a statement much more frequently that thay will disagree with its opposite.

f) Although the subject may be asked questions about behaviour or attitudes there is no certainty that s/he is in possession of the relevant information.

All data collection methods requiring subject reporting suffer from such errors to a greater or lesser degree. Individual methods have their own strengths and weaknesses and may, to some extent, offer the possibility of overcoming or at least minimising the above sources of error.

Questionnaire studies are probably the most ubiquitous means of data collection in social research. Their main advantage is economy of execution; postal services obviate the need to travel to respondents and it is possible to carry out country-wide random surveys at fairly modest cost. The lack of pressure on the respondent does however tend to aggravate non-response and the tendency to answer untruthfully or sabotage the study. Suitable wording, follow-up letters and finanacial inducements may go some

way to counterbalance this defect.

Conventional interviews are much more resource intensive than questionnaires since they require the investigator to travel to locations and to spend what may possibly amount to considerable time with each respondent. Because of the larger inputs from the investigator, the presence of personal pressure on the respondent and the fact that respondents do not need to go to the trouble of writing out their answers, response rates and the quality of data collected tends to be higher in interview studies than for questionnaires. Interviewers are also in a better position to judge the validity of a particular answer from an assessment of non-verbal behaviour.

Telephone interviews are similar to questionnaires in that subjects may be contacted at long distance with low cost. They are also extremely fast but suffer from the disadvantage that the respondent may easily terminate the exchange.

Both questionnaire and interview studies may be designed with a view to minimisation of the effect of some of the errors cited above. Questions may be duplicated in alternative forms to eliminate the effect of response sets. Careful design may enable attitudes and behaviours to be investigated in such a way the respondent can neither detect their objective or disguise his/her own motives. Such solutions suffer from the necessity for often lengthy and complicated interrogations that increase errors further due to tiredness and boredom on the part of both investigator and subject.

Archival methods may also involve subject reporting, such

methods include letters and company reports as well as information gathered by official and non-official bodies for various purposes. The main advantages are the ease with which available information may be accessed, in many cases, and the fact that information has often been gathered for purposes other than those of the researcher. The opportunity for the respondent to deliberately sabotage the study, by knowledge of its purpose, is therefore reduced. Disadvantages are that the type of information that may be gathered by such methods is rather limited, reactivity still applies in such situations and respondents may be particularly careful about information which is to be released into the public domain.

A number of techniques exist which enable data collected without the necessity for the subject being studied to participate in the data collection process. Such methods operate on the premise that the most accurate way to find out about behaviour is for the investigator to observe it either directly or indirectly. The main advantage of such methods is that the subject has little control over the information gathered thus limiting the impact of reactive arrangement. In some cases it may be possible to collect information without the necessity either for the acquiescence or knowledge of the subject. This carries the additional advantage that reactivity is entirely eliminated and truly random selection of subjects may be achievable. In some circumstances, however, covert study may be objectionable on ethical grounds. The main disadvantage of investigator reporting methods is that motives and attitudes may be difficult to establish by such means with the

consequent difficulty in establishing causal linkages. In cases where quantitative data is required, it is necessary for the investigator to decide in advance which aspects of behaviour are to be observed.

The main methods of data collection involving investigator reporting are direct observation and observation of traces:

a) Observation studies involve direct observation of subject behaviour, they permit both verbal and nonverbal data to be examined. There are two main types: participant and non-participant. Participant observers are themselves actors within the situation being studied, their presence may therefore directly affect the situation being measured. Where participant observation is of a covert type, it is possible that ethical codes will be transgressed. Non-participant observation involves the observer being present but not taking part in the activities being studied. Again there are overt and covert types; observers may sit in on a meeting or other activity with the full knowledge of participants. In such circumstances it seems unlikely that subjects will behave in the same way as if they were not observed (Arsenian 1943) although it has been claimed that after a short time subjects aclimatise to a situation and behave entirely naturally (Deutsch 1949). Covert non-participant observation may employ one way mirrors or hidden audio-visual equipment. Perhaps its most acceptable form is where public activities are concerned, in the measurement of traffic flows, the use

of particular facilities or in studies of the content of newspapers and television programmes.

b) Traces are evidence of activity which are left after its completion. Examples of their use is the determination of the popularity of exhibits in museums from wear on floor coverings (Webb et al, 1966), or where lifestyles are determined from the contents of dustbins. Being indirect, the method leaves more scope for error than direct observation. The method is also restricted in terms of the situations where it may be used. Its main advantage is the lack of any possibility that behaviour may be influenced by the data collection process.

The errors considered above are general in nature. In order to determine the most advantageous methods for use in the present study, it is necessary to consider the particular circumstances facing the retail investigator.

In studying retailing the researcher may focus on either the retailer or the consumer, reactive error may occur in either case. In the case of a retail operator, self-selection may occur when an investigator seeks permission to carry out a shop door survey. Many retailers quite rightly feel that such interference may be unwelcome for their customers and and are reluctant to grant access to researchers (Ornstein 1976). This problem does not arise in cases where the retailer commisions the survey.

The main problem of reactivity as far as retailers are concerned stems from the fact that the great majority are small

business-people. This section of the community is noted, on the one hand for their mistrust of academics and officials, on the other hand for their secretiveness about their plans and practices (Bennet 1978, McGivern and Overton 1978). This secrecy on the part of small business people probably stems from the fear that information concerning business methods will fall into the hands of competitors or that it will evoke hostility if publicised (i.e. evidence of profiteering). Kirby (1978) found that small retailers understate their takings for tax purposes, this represents a further reason for secrecy. In general, the small businessman considers himself self-reliant, non-conformist and stresses the value of individual effort (Kets de Vries 1977, Stanworth and Curran 1976). For these reasons appeals that the research is for the general good may carry little weight and officials may be seen as an impediment rather than an aid to his efforts (Kirby 1979:76).

Campbell and Chisholm (1970) encountered a 50% refusal rate when they attempted to obtain price information from a sample of shops. Bertaux and Bertaux-Wiame (1980) were unable to get the co-operation of small bakers in France until they were able to overcome their scepticism of the value of their research. Hughes and Pollard (1957) referring to the 1950 Census of Distribution note that:

> Small shops in particular sometimes omitted to reply to certain questions or sent in a return that was highly suspect.

Even in reply to questionaires to which they are legally required to respond it appears that small shopkeepers are less than fully

co-operative.

The previous paragraphs provide evidence of particular difficulties that attach to gaining the co-operation of small retailers. This issue is of particular importance both because of the predominance of small operators in retailing and their key importance as the focus of the present study.

Collection of data on consumer attitudes and behaviour does not appear to involve quite such severe problems of sample self-selection as for the retailers. Shop-door surveys (additionally requiring retailer cooperation) typically achieve response rates of between 65 and 80 percent (Lee and Kent 1975 and 1977, Hallsworth 1982). Even studies using shopping diaries (and requiring a large amount of effort by the respondent) have achieved response rates in excess of 80 per cent (Rogers 1977).

The response rates quoted above are almost certainly no worse and probably a great deal better than those achieved in other subject areas (Bailey 1982). As noted earlier, however, it is a matter of opinion whether the missing 20 to 35 percent of respondents who refused to participate may be dismissed as of no consequence.

The main problem with consumer studies is less a matter of sample representation than of data quality. Henry (1958) and Packard (1957) cite various examples of research which suggests that consumer reports of buying behaviour are not consistent with the sales figures themselves. The reason for this would appear to be that that respondents answer normatively in such situations for reasons of prestige. This phenomenon has been cited earlier as a

recognised type of reactivity in research known as the guinea-pig effect. It may be that this is particularly severe in retailing owing to the importance consumers place in being seen to be rational in their purchasing decisions. Other research, cited by Packard, indicates that in supermarkets some selection of merchandise may take place in a "trance", this suggests that for some purchase decisions the consumer may not actually be aware of his/her motives. In such circumstances the reasons given for making a particular choice may not be valid.

The above discussion indicates that the use of data collection methods requiring the collaboration of retailers or consumers may be problematical. Evidence has been presented earlier of a number of inherent defects in these methods and it may be that these are particularly severe when they are used in retailing research. The scope for the use of alternative methods therefore needs to be given very careful consideration.

Data collection methods not requiring the collaboration of subjects are confined to those investigator-reporting methods which may be carried out in a covert fashion such as trace methods and simple observation. While it would be difficult to employ trace techniques, non-participant observation appears particularly promising. Earlier in this chapter it was noted that this technique could be effectively and ethically employed in situations where the activity being measured occurs in a public place. While retailing activities may not be entirely public, they are sufficently easily accessed to permit the use of this technique. The method is particularly well-adapted to collecting data about marketing mix

variables. Such data is relatively easy to collect although the method is resource intensive since each retail unit needs to be visited by the investigator for purposes of assessment.

While simple observation appears to be particularly suited to the assessment of marketing mix variables it is by no means clear how it may effectively be used to determine sales. Although sales levels may observed directly this almost certainly would involve monitoring each shop over several hours in order to achieve reliable results. The evidence from the empirical work tends to support this conclusion. An alternative approach involves assessment of some easily measured variable that is conceptually associated with sales. Such variables include traffic through the shop or average number of customers in the shop at any any given time. In particular the mean number of customers in a shop seems attractive owing to the likelihood that time spent in a shop is directly associated with the value of purchases made.

In conclusion, it is noted that choice of suitable data collection methods appears to be highly problematical given the nature of the research problem being investigated. While direct observation appears to be the least subject to error and appears particularly suited to the collection of data about the retail marketing mix problems arise in accessing information on sales turnover. Although it would be possible to employ a mixture of observation to determine marketing mix and an interview study of retailers in order to determine sales turnover, it appears to the author that given the typical personality profile of retail operators, which has been outlined earlier, it would be unlikely

that they would be enthusiastic about imparting such information. In any case it is unlikely that such data would be particularly accurate. It is determined therefore that simple observation should be the principal data collection method. It is proposed that the use of observable indicators of sales turnover should be investigated.

4.7.2 Operational Definitions

Operationalisation of variables involves definition of a variable in terms of the measurement process involved. An operational definition requires specification of all possible factors that may affect the measured value. The main issues to be resolved regarding operational definition are as follows:

a) Objectivity vs Subjectivity - A subject may be assessed according to a precise quantitative scheme (size of shop in sq. ft.) or according to a judgemental scheme in which candidates are placed in one of a number of categories (large, medium, small). The advantage of objective measures are that they minimise the possibility that investigator bias will contaminate results. Subjective measures, by contrast, have the advantage of speed of application. Some variables (i.e. attractiveness) may only be measured by subjective means although bias may be reduced by using multiple assessment involving a number of individuals.

b) Single vs Multiple Measurement - A single marketing

influence may be measured in more than one way. Thus shopping environment might be defined as "the physical size of the centre in which the shop is located" or as "the number of shops in the immediate vicinity", Clearly however this is highly influenced by the nature of the variables being measured. The advantage of multiple measures is that they allow the researcher to check his/her judgement in cases where either a particular definition or the measurement process itself is thought to be subject to error. Where multiple measures show a high degree of convergence (i.e. results are highly correlated) the investigator may be confident that a particular influence has been adequately measured. The main disadvantage attaching to the use of multiple measures is that greater resources need to be devoted to a given task than if single measures are used.

In the present study the requirement for quantitative accuracy indicates that quantitative measures should be used where possible. Multiple measures, although highly desirable, are used only where a particular variable is dubious as to validity or where the variable in question is thought to be particularly important.

4.8 Data Analysis

Data analysis may be impressionistic or statistical. In the case of impressionistic analysis the investigator simply reads through the data in search of obvious patterns. Such analyses are

particularly suited to qualitative data where the investigator has few preconceived ideas or hypotheses. Statistical analyses involve mathematical computations and for this reason require:

a) That the data be quantitative.

b) That the investigator be able to decide, at least to some degree, which computations are appropriate.

Statistical analyses may be either univariate or multivariate. Univariate analyses confine themselves to one to one comparisons between variables while multivariate techniques enable the combined effects of variables to be evaluated. While the former allow only a fairly superficial analysis to be made they have the virtue of simplicity and the relative ease with which results may be interpreted. The latter are more powerful but suffer from the drawback that the investigator may be overwhelmed by numbers and lose sight of the underlying process and the meaning of the results obtained. This is particularly likely where analyses are carried out using computers.

In the present study the objective that the effect of a large number of variables should be precisely quantified indicates that multivariate statistical procedures should be the principle method of analysis. Other techniques will also be used in a subsidiary capacity. More detailed considerations regarding the development of the analysis process are presented in Chapter 6.

TABLE 4.2 Advantages and Disadvantages of Alternatives Available in Various Aspects of the Study Specification.

Aspect of Study	Alternatives	Advantages	Disadvantages
1. Research Problem	a) Leave as is	Widest application and interest.	Large scope may restrict detail.
	b) Focus variables	More precision in measurement.	Important variables overlooked.
	c) Focus shop types	More accurate model possible	Application and interest reduced
2. Research Design	a) Experiment	Better control of extraneous factrs possiblity to demonstrate causal linkages, manipulations may exceed naturally occuring limits.	Artificiality and reactivity, time consuming. Access may be a problem
	b) Survey	Natural situation ensures realism, Small resource input per case. Access may be relatively easy.	External contamination is possible. Variablity is limited to natural levels. Relatively difficult to demonstrate causal connections.
	a) Longitudinal	Facilitates the study of dynamic interactions and naturally occuring developments over time.	May require large time inputs or extended study period in order for measurable changes to occur.
	b) Cross-sectional	Resource economy.	Dynamics and changes over time may be important to problem being studied.
	a) Single-phase	More rigorous attention may be paid sampling, and data collection.	Less dependable results, more risk of undetected error, design errors may not be visible until study is complete.
	b) Multi-phase	Allows refinement and testing of measurement instruments by means of pilot phase. Permits testing of derivative hypotheses.	Requires additional resources or less rigorous attention to individual phases.

TABLE 4.2 (cont)

Aspect of Study	Alternatives	Advantages	Disadvantages
3. Conceptual Framework	a) Shop attributes & shop sales.	Direct appraisal of key concerns.	Access a problem esp to sales data. Demonstration of causation difficult. Investigator needs to determine salient factors in advance
	b) Consumer attitudes	Makes possible identification of previously unsuspected effects. Relative ease of demonstating causal linkages.	Limits data collection methods to those requiring subject collaboration. Difficult to quantify effects.
	c) Retailer attributes	Illuminates causes of retailer behaviour which may relate to unmeasurable effects.	Knowledge is of little practical value.
	d) Individual consumer behaviour	Makes possible comparison of attitudes and actual behaviour thus facilitiating illumination of causal links and theory development.	Maximises changes in behaviour due to reactivity. Effect on individual shop performance difficult to quantify from results.
4. Hypotheses	a) Exploratory b) Precise	No preconcieved ideas are necessary Supported hypotheses have relatively	Low validity attaches to results. Limits study to subject areas where an established body of knowledge exists from which hypotheses may be derived.
5. Population	a) All shops	Largest possible constituency of interest and largest potential scope for theory development.	Large resources needed if accurate and precise results are to be acheived.
	b) Shops in limited Kobs	Largest precision for given sample size.	Limits on comprehensiveness.
	c) Shops in limited geographic area	Maximimum sample size for given resource input.	Limit on generalisation of results to area covered.

TABLE 4.2 (cont.)

Aspect of Study	Alternatives	Advantages	Disadvantages
6. Sampling	a) Non-random	Ease of access, maximum sample size for given resource input.	No opportunity for statistical determination of extent to which result apply to population.
	b) Random	Full generalisation of results within known limits (statistical signific- may be applied).	Access to randomly selected subjects may not be possible. Sampling frame is required.
	c) Semi-random	Permits assumption of representative- without the resource inputs required for a random sample.	Unknown factors may make assumption questionable. Need to test the effect of unrepresentative aspects on results.
	i) Quota	Allows theoretically important dimen- sions to be fully represented in a small sample.	Need to know relevant dimensions in advance to avoid introducing serious bias.
	ii) Cluster	Allows relatively low resource inputs for a given sample size. May be used without a sampling.	Sample will not be properly represent- ative along the dimension used for clustering.
	a) Case study	Facilitates maximum effort in data collection for a given subject.	Lack of representativeness, scope to generalise is low regardless of sampling method used.
	b) Small sample	Compromise, possible to generalise within quantifiable limits.	Small effects may not be detected. Limit to variables that may be entered into multivariate statistical analysis.
	c) Large sample	Maximise representativeness, maximise sensivity to small variations. May generalise results to population of millions.	Large resources needed if data collect- ion methods are resource intensive.

TABLE 4.2 (cont.)

Aspect of Study	Alternatives	Advantages	Disadvantages
7. Data Collection	a) Subject reporting methods	May measure attitudes, respondent may suggest salient concepts.	Need aquiescence of subject so representativeness may be limited Reactivity may affect quality of data due to guinea pig effect, change due to measurement process, sabotage etc.
	i) Questionaire	Relatively low cost per subject	Possible low response, poor data quality, inconsistent conditions
	ii) Interview (face to face)	Possible to clarify meanings and pursue a line of questioning to obtain information required. Better response rate questionaire.	Higher cost per subject. Necessity for skilled interviewer to mimimise errors from this source.
	iii) Interview (Telephone)	As above but lower costs involved	
	iv) Archival	Low cost	Avaliablity may limit sample representativeness.
	b) Investigator reporting methods (Observation & trace)	May not need aquiescence of subject avoiding errors from reactivity. Particularly suitable for investigation of activities carried out in public places.	Covert methods may give rise to problem of ethics, availablity of suitable access may limit sample. May be difficult to identify causal linkages. Necessary to decide what to measure in in advance. May require large resource input per subject.
	a) Subjective	Relatively quick and easy to apply Some concepts may only be measured this way.	Increases threat from investigator bias
	b) Objective	Less scope for investigator error	Greater resource input per measurement

TABLE 4.2 (cont.)

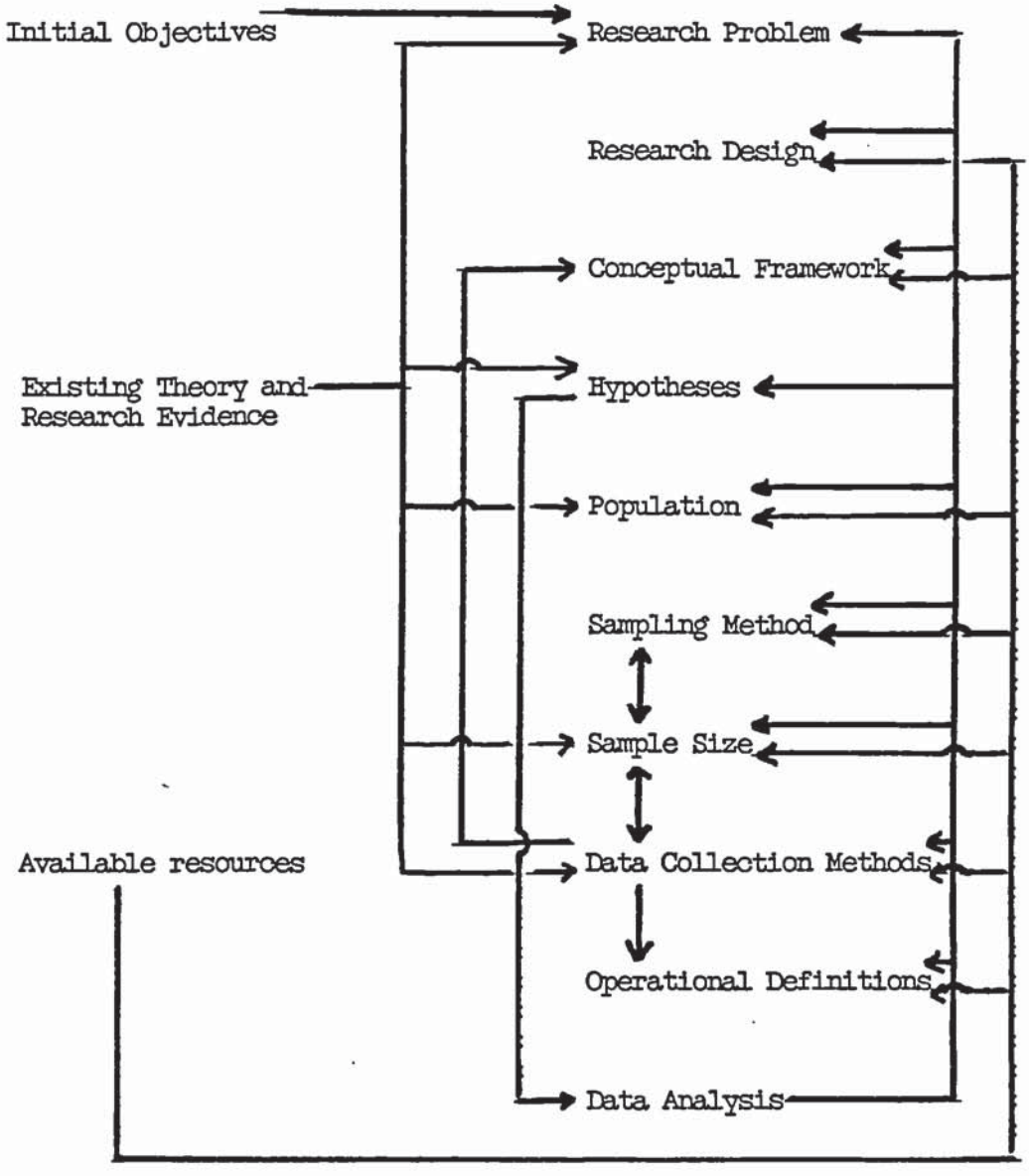
Aspect of Study	Alternatives	Advantages	Disadvantages
8. Data Collection	a) Impressionistic	Suitable for qualitative data types permits identification of unsuspted interactions.	Increases risk of error of chance effects being identified as important Others may be overlooked
	b) Statistical (univariate & multivariate)	Methodical approach to identification of interactions, quantification possible.	Sophisticated methods may increase risk of error and obscure meaning and nature of observed interactions.

The reader should refer to the text evidence in support of these points.

4.8 Conclusion

Particular emphasis has been placed on the methodological issues underlying the specification of the study as it is considered by the author to be a vital quality of any study to demonstrate that the methods used are both the most suitable and appropriate to the task in hand. The issues which have been outlined are summarised in Table 4.2. This sets out the advantages and disadvantages attaching to the available strategies in every aspect of the study. In determining the appropriate methods account has taken account of these defects and the general compatibility of a particular technique with the objectives of the investigation, existing theory and research, and the resources available. Some interdependence exists between the different aspects of the study design. The nature of these complex interrelationships are illustrated in Figure 4.2.The following chapter describes the methods used in the main phase of study, many points in this specification have been influenced by the results of the pilot work as well as the considerations set out in this Chapter. The pilot study is described in Appendix B.

FIG. 4.2 Interdependencies Between Aspects of the Study Which Influence the Specification Process.



The arrows indicate sources of influence in making choices between available alternatives in each facet of the study design. Sources may be external factors or other aspects of the study. Thus choice of data collection methods is determined jointly by existing retail research evidence, sample size, the nature of the research problem and the available resources.

CHAPTER 5 SPECIFICATION OF THE STUDY

Summary

5.0 The chapter sets out the specification of the main phase of study. Individual sections deal with; the research problem, the research design, the conceptual framework, the population and sample, the data collection, the the entry of data into computer storage files and the verification process.

5.1 The aim of the study is to quantify the effect of factors that determine the sales performance of a shop.

5.2 The study takes the form of a survey of existing variations between shops at a single point in time.

5.3 The study focusses on the customer-shop interface and examines the effect on sales of marketing mix variables.

5.4 Hypotheses are broadly framed and the study is largely exploratory in nature The main existing hypotheses state that variables representing aspects of pricing, location, promotion and product range influence sales. Additional hypotheses derive from the pilot phase of study or test assumptions about the validity of some variables.

5.5 The population studied is composed of specialist greengrocers and gent's fashion outfitters located within 45 miles of Birmingham.

5.6 Cluster sampling is employed in order to obtain a representative sample of 129 shops suitably located to facilitate data collection by the proposed methods.

5.7 The principal data collection method is simple observation on site. Detailed operational definitions for the 23 variables are described.

5.8 Data entry involves collation, entry into computer storage, file combination and data specification. Verification is undertaken at each stage.

5.0 Introduction

The underlying methodological issues relating to the design of the study were considered in the previous chapter. In designing the research program, account has been taken of general theoretical issues relating to research methods in the social sciences, the findings and experience of other researchers in this and related fields and the results of the pilot phase of the present study. The present chapter sets out a detailed specification of the main phase of the study. It deals with the issues of the research problem, the research design, the conceptual framework, the hypotheses, the population being studied, sample determination, data collection, data entry and verification.

5.1 The Research Problem

The research problem has been detailed at various points in this thesis. It is to identify and quantify the relationships between shop performance and its principal determinants.

5.2 The Conceptual Framework

The study objectives are to relate performance to its causal factors. The aspect of performance considered is sales turnover. The causal factors considered are confined to various aspects of the marketing mix; representing price, promotion, location and product mix. It is held that these factors represent the two sides of the direct interface between customer and retailer. The

marketing mix embodies those activities of the retailer which act directly upon the consumer, the act of purchase is the consumer response.

5.3 The Research Design

The research study is cross-sectional in time and takes the form of a survey of existing variability in the shopping environment.

5.4 The Hypotheses

The study is primarily exploratory in nature. Existing hypotheses derive both from other theoretical work and from the substantive results of the pilot phase of study; the latter is summarised in Appendix B. Table 5.1 lists all the variables which are considered in the present phase of study; hypotheses relating to these variables state that a given variable affects performance to a measurable degree.

Choice of variables was made according to a number of criteria:

a) That all the important aspects of the marketing mix should be represented.

b) That multiple representations should be used where a variable is subjectively evaluated or susceptible to error of measurement.

TABLE 5.1 Marketing Mix Variables Forming the Basis of Hypotheses in the Main Phase of Study.

Location -	Size of Shopping Centre
	Centrality to Other Shopping
	Other Shops in Vicinity
	Competition
	Nature of Other Shopping
	Pedestrian Traffic
	Car Ownership in Area
	House Ownership in Area
	Population in Area
	Population Density in Area
Product -	Categories of Goods on Sale
	Assortment Width (lines)
	Assortment Depth (Choices)
	Choice Density
Promotion -	Trading Floorspace
	Shelf/Display Space
	Frontage
	Ownership
	Price-tagging
	Self-service
	Shop Attractiveness
Price -	Price Level at Upper Limit
	Price Level at Lower Limit
	Price Range

Operational definitions of these variables are given in Section 5.7

c) That the number of variables actually measured be kept to a minimum in order both to simplify data collection and to avoid random errors from entering a large number of variables into MRA (see Alpert and Bibb 1974).

A considerable number of location variables are included in spite of the fact that pilot work indicates that these are highly inter-correlated. Location is generally held to be a key factor in retail performance and it is deemed advisable to include representations of most aspects. Variables represent the nature of the physical environment of the shop with varying degrees of immediacy and measure different types of influence. The variables are nevertheless highly interrelated. Most general are factors relating to populations in the catchment area from which a centre draws its trade, such measures relate to large areas in the case of a shop which is located in the centre of a city or large town. Most specific of the location variables is pedestrian traffic which concerns population movements in the immediate vicinity. Other variables such as centre size represent an intermediate stage between these extremes. Although variables representing different sizes of environmental universe are necessarily distinct (measurement of pedestrian flows in an entire city, for instance, would clearly be impractical), they do represent a broad compromise between the necessity for economy and the desirability for comprehensive representation of all possible influences on shop performance. Promotion variables represent the theoretically important issues of size (of floorspace, display area and frontage), ownership (which may affect reputation), price tagging,

extent of self-service (found to be important at pilot stage) and general shop attractiveness (in terms of subjective evaluation of interior and exterior equipment and displays. Product is represented in terms of categories (the number of self-contained product ranges on sale), range width and range depth (choices). Measurement of product variables is very time-consuming since a number of products need to be evaluated on a given measure. At the pilot stage product variables were not found to be an important influence on sales in either KOB. For these reasons product variables have been confined to measures of depth and width of assortment, other product variables (such as number of brands) are not considered.

Price is represented by three variables only; price level at the top of the range, price variables at the bottom of the range, and price range (i.e. the interval between top and bottom). Other variables such as price for a standard product or mean price are excluded. Surprisingly, price variables were not found to be at all influential in terms of sales performance at the pilot stage.

More specific hypotheses derive from the pilot phase of study. Although it is not proposed that the detailed formulations derived from statistical analysis at that stage should be tested; the substantive results are noted and every efforts is made to assess whether these may be duplicated to any extent with the larger sample used here. For greengrocers shops a strong tendency was noted for pedestrian traffic to influence performance while the extent of self-service was found to be the second most important influence. For gent's outfitters the substantive results were ambiguous and fairly unsatisfactory and no specific hypotheses are

posited for this KOB. Further hypotheses are generated during the course of the analysis and these are tested as they arise.

While the above might be termed "substantive" hypotheses, since they relate directly to the research problem, another set of hypotheses also exist. These are termed "operational" hypotheses, they relate to the connection between conceptual and operational definitions of variables. Most important in this category is the hypothesis that the indicator of performance is a valid representation of actual sales. This and other hypotheses relating to the validity and reliability of variables are detailed in the following chapter.

5.5 Population

A population is composed of those entities to which it is intended that the research findings should be applicable. Although the research problem is concerned with shopping in general, the study itself is more narrowly focussed in respect of the geographic area covered and in the type of retailing studied. Both limitations are necessitated by resource limitations. Fairly specialised types of retailing are included to avoid the possibility that wide variations in product mix might give rise to difficulties of interpretation of results and reduced strength of explanation. Initially greengrocers were selected for study owing to the strength of small shops in this KOB (all the shops in the sample proved to be under 1,000 sq.ft. while 91% are independently operated), the results at the pilot stage are considered to reflect the status of these goods as convenience merchandise (see section

6.3.1). Gent's fashion outfitters were subsequently selected for study on the basis that they represented a contrasting (i.e. comparison) homogeneous kind of business in which physically small shops are present in large numbers (57% of the shops in the study were under 1,000sq. ft.).

Geographical limitations were imposed as a result of restrictions on time and financial resources. The study was confined to places within appproximately one hour's travelling time of Birmingham.

The results properly apply only to populations defined as follows:

> For Greengrocers - Shops within 45 miles of Aston University (central Birmingham) specialising mainly in fruit and vegetables, other categories of goods on sales should be restricted to flowers and general groceries.
>
> For Gent's Fashion Outfitters - Shops within 45 miles of Aston University specialising mainly in gent's fashion (including jeans and fashion trousers), other categories of goods on sale should be restricted to ladies wear, childrens wear and gent's formal wear.

In each case a "shop" was considered to be any location selling items to the public on all of the occasions during which data was scheduled to be collected. No restriction as to maximum floorspace was made.

5.6 The Sample

The method of sampling is determined jointly by the need for representativeness and time limitations which required that all shops could be visited at comparable times over approximately eight weeks. The comparability requirement was that all shops should be visited during a two hour time period on a given weekday. Assuming that no seasonal variations would occur over the collection period (special attention was paid to price in this respect), a satisfactory sample would be one which could be divided into eight sections such that every shop in a given group could be visited during the two hour period.

A form of geographic cluster sampling was used to obtain a suitable selection of shops. Experience gained during the pilot phase of study indicated that a sufficiently large sample (over 50 in each KOB) would only be obtainable by this method if a number of large conurbations were included in the study. Gent's outfitters shops do not appear to locate in centres smaller than district centres while the vast majority are located in large town and city centres. Most greengrocers are located in small town and district centres, a few locate in smaller centres. For these reasons sampling is restricted to centres with populations over 20,000 while including at least two centres with populations of 200,000 or more. Table 5.2 lists all such towns located within 45 miles of Birmingham. Random selection of six towns from this list (subject to the above quotas) resulted in the major cities of Coventry and Leicester being selected along with the smaller towns of Walsall,

TABLE 5.2 Cites and Towns Within 45 Miles of Birmingham with Populations Greater than 20,000.

Source: OPCS 1981

Leamington, Bromsgrove and Kidderminster (it was considered that the two larger towns would need to be subdivided for data collection purposes, producing eight groups in all).

Compilation of the sample itself was accomplished by visiting each population centre in turn and making a physical search for suitable shops. A total of 129 shops were identified in this way, comprising 57 greengrocers and 72 gents fashion outfitters.

Examination of the patterns of location of these shops within each population centre (see Appendix C) reinforces earlier impressions that gent's outfitters locate mainly in large shopping centres where they are often present in considerable concentrations. The mode for greengrocers is the the small town or district centre, rather than either city or local centres.

Although the sampling process used is not entirely random in nature, it is considered that the shops identified in this way are representative in most respects of shops within the study area. An important exception to this exists in respect of the type of population centres in which the shops are located; by definition shops in centres of less than 20,000 people (where these do not form part of a larger conurbation) are not represented in the sample. In addition examination of Table 5.3 indicates that although centres with populations in the range of 20,000 and 200,000 might be expected to account for 80% of shops in the area studied they represent less than 50% of the sample. Such considerations are important only if size of conurbation is an important factor in determining the effectiveness of a given marketing mix variable. This possibility is examined at the analysis stage (see Section 6.3 - subgroup analysis).

TABLE 5.3 Breakdown of Sample by Population Centre with Estimated Shop Population and Distribution of Shops Between Different Sizes of Centre in the Study Area.

a) Sample Composition

Town		Greengrocers	Gent's Outfitters
Bromsgrove	43,673	3	2
Coventry	314,124	13	14
Kidderminster	51,261	5	5
Leamington	42,953	7	10
Leicester	279,791	18	28
Walsall	178,709	11	13

b) Distribution of Shops Between Centres of Different Sizes

Centre Size	Sample				Area		
	No.of Centres	No.of Shops	% of Shops	Av. Shop /Centre	No. of Centres	Projected N.of Shops	% of Shops
200,000+	2	73	56	36	3	109	22
20,000-200,000	4	56	43	14	27	378	77

Area refers to the entire area from which the sample was drawn.

5.7 Data Collection

The main method of data collection is simple observation. This method eliminates many sources of error associated with respondent self-reports, it is facilitated by the public nature of the retail activities with which this study is concerned. Other sources of data included published details of company ownership and national census reports.

A number of considerations underlie the design of the measurement process, these include:

a) The restricted amount of time available; up to twenty-five shops would have to be visited and measurements taken during a single two hour period.

b) The desirability that measurements be objective rather than subjective in nature.

c) The minimisation of error in the assessment process due to miscounting.

Variables are of dependent (performance measures) and independent (marketing mix measures) types. In most cases identical operational definitions are used for both KOBs.

5.6.2 Dependent Variables

The mean number of customers (or visitors) in a shop was used as an indicator of turnover (no figures on actual turnover for the many small organisations involved being available to the investigator).

This variable is both easy to measure by direct observation and conceptually attractive. Some attempt was made to validate this variable by monitoring takings directly. Resource limitations ruled out continuous monitoring and these measurements were taken over limited time periods on randomly selected occasions. Considerable success was achieved during pilot phases using these methods. Validity and reliability are investigated at the analysis stage of the present phase of study. These variables are operationally defined as follows:

Customers/visitors (CUS) - Persons over approximately 14 years of age either present in the shop or examining goods displayed externally. Where numbers were too large to be enumerated instantaneously the store area was subdivided and separate assessments made; it is considered that errors due to double counting, caused by random customer movements within the shop, are self-cancelling. Considerable care was taken to distinguish shop staff from customers especially since during the summer months clues to identity cannot be taken from the presence of outdoor clothing. Where necessary persons were observed over an extended period in order to obtain behavioural clues.

Customers were enumerated on twenty occasions per shop. Enumerations were paired and taken two minutes apart at times during ten specified periods of two hours duration. Time periods were selected at random from twenty possible weekday periods, the maximum number of measurements was taken on Saturday this being considered most important in terms of

shop trade (Institute of Fiscal Studies 1984). The precise times of measurement are given in Table 5.4.

In order to facilitate the collection of this data each shop was allocated to one of eight possible groups such that it was possible to travel between locations and take measurements from each shop in a group during a two hour period. Each shop was then visited in turn and measurement commenced instantaneously upon arrival. The order in which shops were visited was varied by reversal whenever it was anticipated this was required to take account of fluctuations in trade level, due to the time of day, within that two hour period. If the first monitoring period for a group of shops was between 3 and 5pm on a Tuesday and the second was between 3 and 5pm on a Saturday the order of monitoring would be reversed on the second occasion since it is likely that trade levels are typically higher at the beginning than the end of this period.

Takings (TAK) - Takings were monitored during the two minute interval between customer enumerations on five occasions during the week (two on Saturday). Measurement presented difficulties since it was of considerable importance to avoid interfering with the trade of the shop, antagonising proprietors or employees. Measurements of takings are subject to far greater error than measurements of customers and mistakes are possible especially during busy periods. Where the shop used a cash register amounts rung up were observed, otherwise attempts were made to overhear a transaction or to

TABLE 5.4 Timing of Measurement of Customers, Takings, Pedestrian Traffic and Self-service.

OCHrs	Monday	Tuesday	Wedn'day	Thursday	Friday	Saturday
9–11		SELFS1 SELF1B CUS1 TAK1 PED1	SELFS2 SELF2 CUS2 TAK2			CUS7 PED7
11–13				SELFS3 SELF3 CUS3 TAK3 PED3		SELFS8 SELF8 CUS8 TAK8
13–15				SELFS4 SELF4 CUS4 TAK4	SELFS5 SELF5 CUS5 TAK5	CUS9 PED9
15–17					CUS6	SELFS10 SELF10 CUS10 TAK10

note the nature of the purchase(s) and subsequently obtain information on the value of the goods involved.

5.6.2 Independent Variables

Independent variables are classified according to whether they relate to pricing, promotion, location or product range. Where possible the same definitions are used regardless of Kind of Business (KOB), however, in a few cases (notably product range and personal selling) separate definitions have been used.

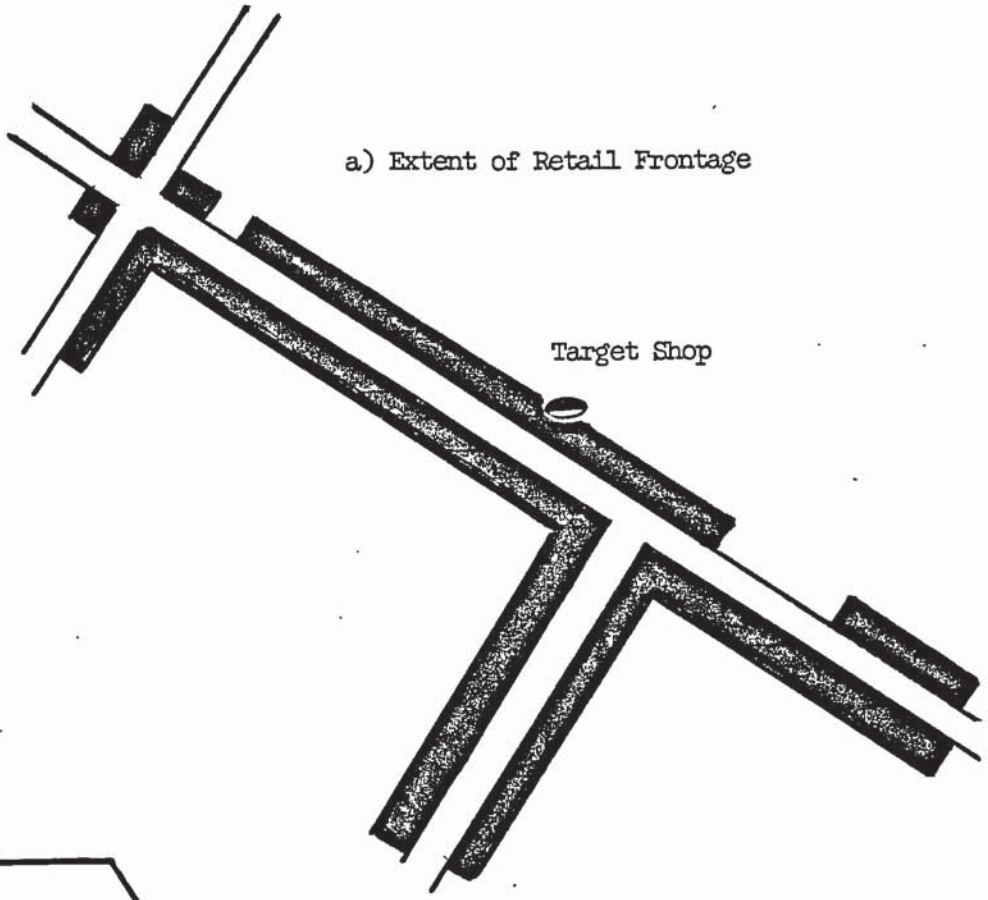
1) Location Variables -

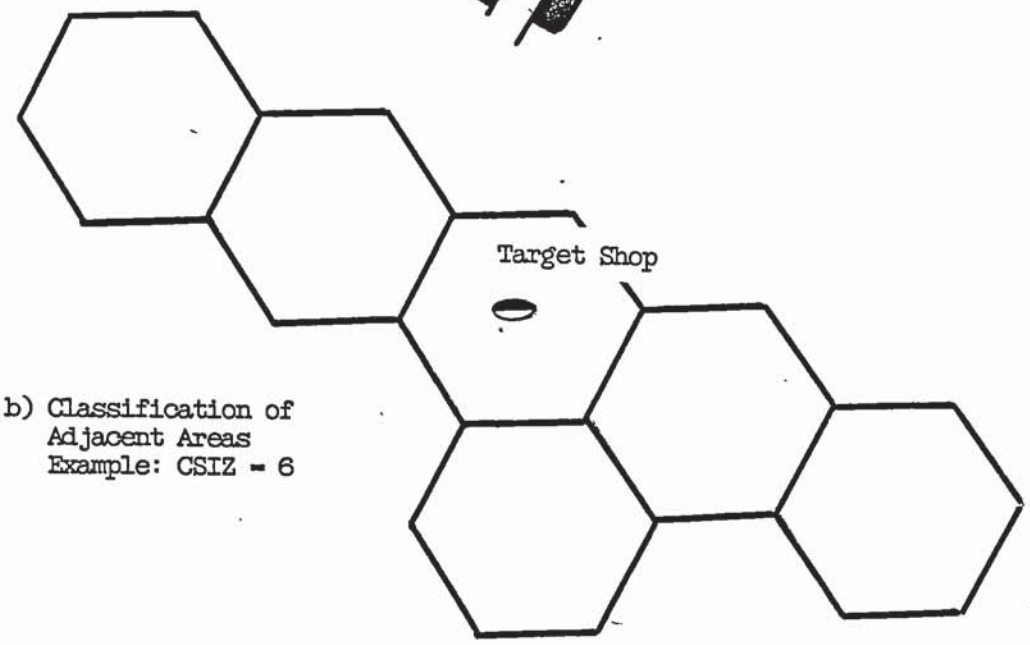
Six variables were measured; these relate with varying degrees of immediacy to the location of the shop:

Centre Size (CSIZ) - An assessment of the physical area covered by the centre in which the shop is located. The method involves dividing the area surrounding the shop into a series of adjacent hexagons of 100yds radius. These are classified according to whether the extent of retail use of ground floor premises exceeds 50%. A group of adjacent retail areas is taken to constitute a centre and its size is the number of such areas (see Fig. 5.1) Measurement of this variable involves combined use of maps and physical survey. In practice there are large differences between centres and there are no obvious problems of accurate discrimination.

Centrality to other Shopping (FAN) - Measurement involves division of the area surrounding the shop into seven hexagons of 100yds radius (see Fig. 5.2) the shop is located in the

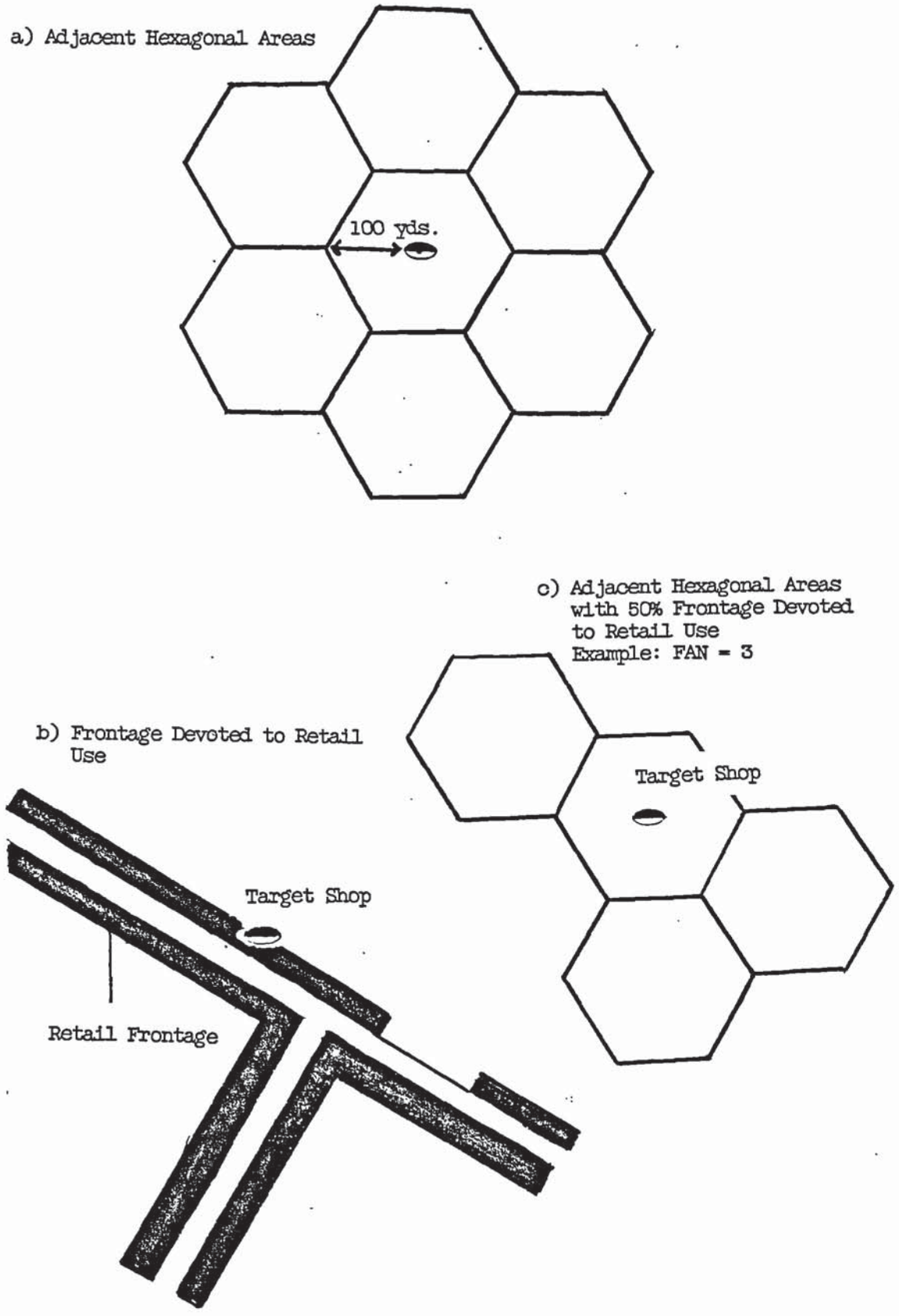
FIG. 5.1 The Measurement of Size of a Shopping Centre (CSIZ)





b) Classification of Adjacent Areas
Example: CSIZ - 6

FIG. 5.2 The Measurement of Centrality to Other Shopping (FAN)



centre of the central hexagon. The six peripheral hexagonal areas are then classified as retail or non-retail according to whether retail use of frontages exceeds 50%.

Number of Other Shops (NOTH) - An assessment of the shopping environment within 100yds. of a shop. The number of shop frontages belonging to different businesses were enumerated. Although this is fairly straight-forward way to assess retail intensity, problems occur when a few large stores dominate the surrounding environment leading to understatement of the amount of shopping. Similarly where a market exists within the vicinity this may be considered to lead to overstatement.

Competition (NSI) - Number of shops selling either gent's fashion or greengroceries (as appropriate) within 100yds.

Nature of the Shopping Environment (H1) - A qualitative assessment of the shopping environment within 100yds. For this purpose a classification hierarchy was developed based on that proposed by Berry (1967):

> Level 1 - Local/Convenience - Confectionery, Tobacco, news (CTN), Grocery (less than 1,000 sq.ft)
>
> Level 2 - Full Convenience - Pub, Butcher, Sub PO, Cafe, Superette (Self -Service Grocery 1,000-4,000 sq ft.), Chemist, Childrens wear, off- licence, specialist greengrocery.
>
> Level 3 - District/Shopping - Hardware, Furniture, Appliance, Supermarket (4,000- sq ft.), dry cleaners,

bank, insurance, travel agent, ladies and gents wear, electrical, jewellery, main PO, footwear.

Level 4 - Specialty - Variety store, market, department store, gents and ladies fashion boutiques (in addition to types already mentioned).

In practice there are difficulties in applying such a classification system since many centres fall between, or cut across, the categories to some degree. Some flexibility of judgement is needed in assessment. In practice a centre is assigned to a given category if it contains 80% of the shops listed at that level, otherwise it was assigned to the lower level.

Pedestrian Traffic (PED) - The average number of pedestrians passing within 20 feet of the shop in one minute during the working week. Pedestrians include all persons over approximately 14 years of age. The value of PED represents one twelfth of the total of six measurements taken over two minute periods in a similar manner to that detailed for TAK and CUS (precise times are given in Table 5.4). Difficulties with this variable occur when traffic is too heavy to be adequately enumerated (this occurred when flows were in excess of 120 persons per minute). In these cases the area in front of the shop was subdivided and the flows were measured separately.

Population in Catchment Area (POP) - A number of variables were measured which relate to the demographic characteristics

of populations within the areas from which a shop might be expected to draw its trade. Such areas were crudely delineated on the basis of the type of centre in which the shop was located (see definition for Nature of Shopping Environment H1). For a convenience centre this was taken as a single ward, while for a town or city centre as the entire conmurbation. Data was obtained from 1981 Census Ward and County reports (OPCS 1982).

Population Density in Catchment Area (PPH) - Persons per Hectare. Although ideally information on socio-economic groups might be desirable, this information is not available. However, clues to general socioeconomic status can be obtained from other published information such as population density.

House-Ownership (OHOM) - Percentage of persons living in owner-occupied accomodation in the catchment area.

Car-Ownership (OCAR) - Percentage of persons living in households having access to a car, as well as being a clue to socio-economic status this is also a measure of mobility.

2) Promotion Variables -

Promotional activities typically include advertising, layout, display and personnel selling activities. Seven promotion variables are included. Particular care needs to be taken in measuring the effect of such variables since many, such as display attractiveness, cannot be objectively assessed.

Annual Advertising Expenditure (ADV) - 1984 advertsing budget in £'s. This figure was obtained from the quarterly publications of Media Expenditure Analysis Limited (MEAL). The measure was applied to gent's outfitters only.

Gross Trading Floorspace (UNITS) - Broadly similar to the definition of "trading floorspace" used in the 1971 Census of Distribution (COD), it comprises the total floorspace to which customers have access including counter space, display space etc. but not including stock rooms and offices. The main difference of this from the definition used here arises from the necessity to properly evaluate both stalls and shops with external displays. Consequently, the area occupied by external displays (and customers examining them) is included. Area was determined by physically pacing out distances or by enumeration of standard floor tiles or paving stones where possible.

Shelf Space (SHEL) - The average shelf space devoted to each product for which choices are measured (see later section). The area in sq. ft. was evaluated by physically pacing out distances or by enumeration of standard floortiles where possible.

Ownership Classification (MIND) - Shops are classified according to whether they could be identified as belonging to an organisation operating ten or more such outlets.

Frontage (FRON) - A measure of the promotional impact of the exterior of the shop premises. Frontage is defined as; that

portion of the shop exterior which can be recognised as such by passersby. The manner of assessment (in sq. ft.) was similar to that for trading area using physical pacing out or enumeration of tiles, paving stones etc.

Extent of Price-Tagging (PTAG) - A measure of the extent to which the prices of different items are marked. The value of this variable is the mean for all the items for which prices and choices are computed (see later section) Measurement required identification of all varieties and assessment of the proportion for which prices were marked.

Individual Price Marking (IND) - Classification of shops on the basis of whether items are individually price marked (gent's outfitters only).

Extent of Self-Service (SELFS,SELF)) - This is a variable for which it is necessary to use different definitions according to the kind of business under consideration. In the case of greengrocers this simply involves an assessment of the proportion of the total products on sale which the customer can, if they wish, select for themselves without the intervention of staff. It is common, in the case of market stalls for instance, to allow self-selection of cabbages and cauliflower but not of potatoes etc. In the case of gents' outfitters such a measure is almost entirely meaningless. Self-service almost always operates to some degree on all lines. The distinction here lies in the readiness with which assistants intervene. This may be measured in terms of time

or in terms of the stage of the purchase process at which the intervention occurs. Both these aspects were measured. Intervention time (SELF) is the time after which unsolicited intervention occurred (1-120 minutes). Intervention stage (SELFS) is the stage of the purchase process when the intervention occurred as follows:

1 - Visual appraisal, sorting through racks etc.

2 - Close examination by physically handling goods

3 - Trying on goods

4 - Paying for goods

Variables were assessed on four occasions during the week involving both quiet and busy periods of activity. Intervention time represents the researcher's own experience in a shop, intervention stage was assessed from a combination of the researchers own experience and the observed experience of other customers.

Attractiveness - Measurement of attractiveness presents considerable problems owing to the highly subjective nature of the concept. Appraisal by the researcher is necessary as it is infeasible to use the more theoretically attractive panel method (using independant judges). An attempt was made to assess several components separately and to combine them by addition into a single index. The components were measured as follows:

Window Type (WIND) - Boxed in window display (score 1), Separate display (score 2), Display integral with shop

interior (score 3).

Attractiveness of Exterior (including window) Displays (XATT) - (1-3)

Attractiveness of Interior Displays (IATT) - (1-3)

Attractiveness of Exterior Equipment and Fittings (XEQ) -(1-3)

Attractiveness of Interior Equipment, Fittings and Decor (IEQ) - (1-3)

Brightness of Lighting (LI) - (1-3)

3) Product Range -

Very little evidence appears to exist as to the effect of product range. "Depth and width of assortment" are somewhat woolly concepts which have been included in conceptualisations of "store image". Here it is necessary to adopt very precise definitions of the dimensions involved. During pilot work experimentation was made with concepts of product depth and width based on the idea that varieties of a particular good can be distinguished from classes of goods on the basis of substitutability. A person who is shopping for denim jeans, for instance, may consider all varieties of denim jeans but is unlikely to consider a shirt as a viable substitute. Difficulties arise with this scheme where a customer is shopping simply for "trousers", they may then consider all varieties of cord, canvas or denim jeans as a substitute. The actual distinctions used in this section have been based on a careful study of the merchandise typically carried by the types of outlet involved and aims to distingish as far as possible the specialist (with few lines but larger choices) from the more generalist outlet

(where the reverse is the case) although the total number of distinctive products may be similar.

Three variables are included in this section. Once again it is necessary to adopt KOB-dependent definitions.

Categories of Goods in the Shop (CAT) - A goods category is a self-contained specialist group of products which may form the basis of a specialist retailing type. Ideally the shop types studied would have confined themselves to selling goods within a single goods category, however the adoption of too restrictive a definition has the effect of severely limiting the number of eligible shops within a given geographical area. The assumption is made that the additional product categories involved do not contaminate the results to a significant extent. Measurement of the number of product categories facilitates division of the sample at the analysis stage so that this assumption may be rigorously tested. The categories were restricted to the following:

Greengrocers - Fruit and Vegetables, Groceries, Plants and Flowers.

Gents Outfitters - Gents fashion wear, Childrens wear, Ladies wear, Gents formal wear

Number of Lines (LIN) - A measure of the number of non-substitutable classes of goods within the main category. Each shop was scored according to the number of items, from the following list, which were offered for sale:

Greengrocers: Apples, lemon, orange, grapefruit, grape,

satsuma, watermelon, strawberry, potatoes, cabbage, cauliflower, parsnip, swede, carrot, onion mushroom, greenpepper, courgettte, chilli, aubergine, ginger, garlic, lettuce.

Gents Outfitters: Denim jeans, cord jeans, canvas jeans, jackets, t-shirt and vests, socks, sweatshirt, shirts, ties, shoes (casual)

Some question arises in the case of greengrocers as to whether the lines specified really are non-substitutable, clearly potatoes and apples cannot be considered substitutes but cabbage and cauliflower may be. An alternative classification was also used.

Number of Lines (LIN2) - An alternative classification applicable to greengrocers: Apples, oranges, other fruits, potatoes, tomatoes, onions, root vegetables, other vegetables.

Extent of Choice (CHOY) - The number of distinct substitutable items offered within a line. Choice was enumerated for a limited number of lines as follows:

Greengrocers - Apples, potatoes, tomatoes, mushrooms, greenpeppers.

Gents Outfitters - Blue denim jeans, canvas and cloth jeans, shirts, jumpers.

Difficulties arise in determining what actually constitutes a distinction between products. In the case of greengroceries

varieties (i.e red, white, new, old potatoes) or qualities (salad vs frying tomatoes) were used. In the case of clothing distinctions were based on any variation of colour, style or brand. An index of choice was constructed by expressing choice for each line as a percentage of mean choice for the entire sample. CHOY is the mean value of monitored choices for a shop. It represents a weighted average of choice offered in the lines which were monitored.

Consistent with the alternative definition of lines it is necessary to adopt an alternative choice classification applicable to greengrocers.

Extent of Choice (CHOY2) - Alternative choice basket for greengrocers - Apples, Potatoes, Root Vegetables, Salad and special vegetables.

Choice Density (CHOYX) - Mean choices per sq. ft. (CHOY/SHEL).

4) Price Variables -

The effect of price variables has not received much attention in existing empirical research. Perhaps this is because the appeal of low price is very much a matter of common sense. However there are a number of potential price dimensions several of which were explored at the pilot stage. These included the price of the lowest priced varieties, the price of standard varieties, the price of special offers, and the price of highest price varieties. In general these dimensions were found to be fairly highly intercorrelated while no variable made a significant impact on the

indicator of sales. In the present phase of study only the price of the cheapest and most expensive varieties were measured, it is anticipated that while the former may attract price concious customers the latter may have more effect on those whose perceptions of quality are highly influenced by price (Hill 1966)

The main problem in measuring price is in the achievement of consistent results from shop to shop given that many of the products involved are subject to considerable seasonal variation in price. For this reason the price of a given product was measured in all shops within a 14 day time period in order to minimise the effect of such variations. Measurements of price variables involved the same products as for choice:

Greengrocers - Apples, potatoes, tomatoes, mushrooms, greenpeppers.

Gent's Outfitters - Blue denim jeans, canvas jeans, shirts, jumpers.

Price variables are defined as follows:

High Price (HIPRI) - The price of the most expensive variety within each line. The value for each variety or choice was expressed as a percentage of the sample mean for that line. HIPRI represents the mean of these values.

Low Price (LOPRI) - The price of the cheapest variety within each line expressed similarly to HIPRI.

5.8 Data Entry and Verification

This section describes the method of entering data onto computer disc file in a form suitable for analysis and manipulation using SPSS (Statistical Package for the Social Sciences). There are three basic stages in this process; the first requires the arrangement of data into a suitable form for entry, the second the "keying in" of data on to a suitable recording medium (computer disc file), the third stage is the translation of these records into a specifically ordered store known as an "SPSS system file". Verification is required at each stage to ensure each process is accurately completed and any errors eliminated.

5.8.1 Data Arrangement

Each field record lists a group of shops and a number of variables that were measured during a given collection session. The requirement that some variables be measured for all cases within two weeks (i.e. pricing) while others are spread over two months (CUS, TAK etc) ensures that the variables recorded on a given record vary considerably for different groups of shops. Since the type of analysis employed requires a consistent ordering of variables for each case, a preliminary rearrangement was necessary. All cases are assigned to one of eight groups (on the basis of location) and a consistently ordered set of values completed for each case. Six fourteen-column data sheets were required

for each group, a total of 36 sheets. Each sheet was identified by an individual code relating to its group (1-60) and the variables to which it related (A-F), the first variable on each sheet (N1-N6) was a case identification number to aid correct entry. Each sheet was laboriously hand checked against the original field record upon completion.

5.8.2 Keying-In

In order to facilitate accurate keying-in of data by a relatively inexperienced operator the data was entered to separate file locations in relatively small blocks representing a single data sheet, these being up to 40 columns and 30 rows in size. No more than three such entries were attempted at a single session since it was found the frequency of errors increased considerably at this point. One mechanism for detecting errors simply involved monitoring of line length; an important check since the majority of errors are due to the repetition or omission of data. Individual files were identified in a similar manner to that described for data sheets.

Completed files were printed and hand checked for accuracy against the appropriate data sheet. Thirty per cent of the sheets contained at least one error, a maximum of six errors was discovered in a single sheet. Errors were corrected and the entire file rechecked.

Additional keying-in was required for SPSS data definition files, these are instructions to enable values in the data files to be associated with the appropriate variable and

consist of variable names and the columns in which they were found. Six such files were created one being required for each of the six variable groups (A-F). Files were hand checked against the data sheets to test for the accuracy of column specification.

5.8.3 Translation to an SPSS System File

Before the data was processed by SPSS itself the number of files were reduced from 36 to 6 by combining files containing similar variables into single 130 row blocks using appropriate file manipulations. The accuracy of this process was checked by examination of file identification numbers for continuity from 1-130. No errors were discovered at this stage.

The appropriate data definition file was then used to read each set of data into SPSS. The accuracy of this process was checked by listing all values, the first and last values were checked against those on the appropriate data sheets. Read-in values were saved in six SPSS system files numbered A-F.

Before analysis commenced the SPSS system files were merged into a single unit. This was carried out using the appropriate SPSS subroutine, successful completion was monitored by checking the variable names on file against those listed on data sheets. No errors were discovered at this stage.

The data analysis process itself and the results obtained are described in the following chapter.

CHAPTER 6 THE ANALYSIS

Summary

6.0 The chapter is in three sections. Section 1 outlines the main statistical techniques employed. In Section 2 a number of attributes of the variables are examined including intercorrelations, linearity of interrelationships, validity and reliability. Section 3 presents the substantive results of MRA. These are evaluated on a number of criteria in order to determine the relative strength of alternative solutions. The homogeneity of the sample, with respect to the results, is also considered.

6.1 The main techniques of analysis are Pearson correlation, scattergram analysis and multiple regression analysis.

6.2.1 In the case of greengrocers the validity of mean customers in a shop (the indicator of sales performance) is given considerable support. Other variables which were monitored over a limited time period were found to have a high degree of reliability.

6.2.2 The mean number of customers in a shop receives much less support as an indicator in the case of gent's outfitters. There is some evidence that this deficiency results from an inadequate number of measurements being made, rather than to any inherent conceptual defect. The reliability of time-sampled measures is satisfactorily established.

6.3.1 In the case of greengrocers the most satisfactory model is based on pedestrian traffic, shelf space devoted to key items, ownership type, interior attractiveness and car-ownership levels among the population served. Further analysis of this model which examines various subgroupings within the data, reveals that the sample is entirely homogeneous in respect of these results.

6.3.2 For gent's fashion outfitters the most powerful model is based on an interaction of centrality-to-other-shopping with a combination of advertising expenditure, shelf space devoted to key lines and shop size. Further analysis among various subgroupings in the sample reveals that the sample is largely homogeneous in respect of these results.

6.4 It is concluded that the methods used have uncovered two powerful, theoretically and predictively valid models which link marketing methods to performance for the shops studied.

6.0 Introduction

Although the ultimate purpose of the analysis is to illuminate causal connections between marketing variables and sales performance from data collected during the main phase of study, part of the analysis is devoted to establishing the validity, reliability and suitablity of the variables concerned for inclusion in the proposed analysis. The analytical process is represented diagramatically in Figure 6.1. It comprises the following stages:

Operational Analysis-

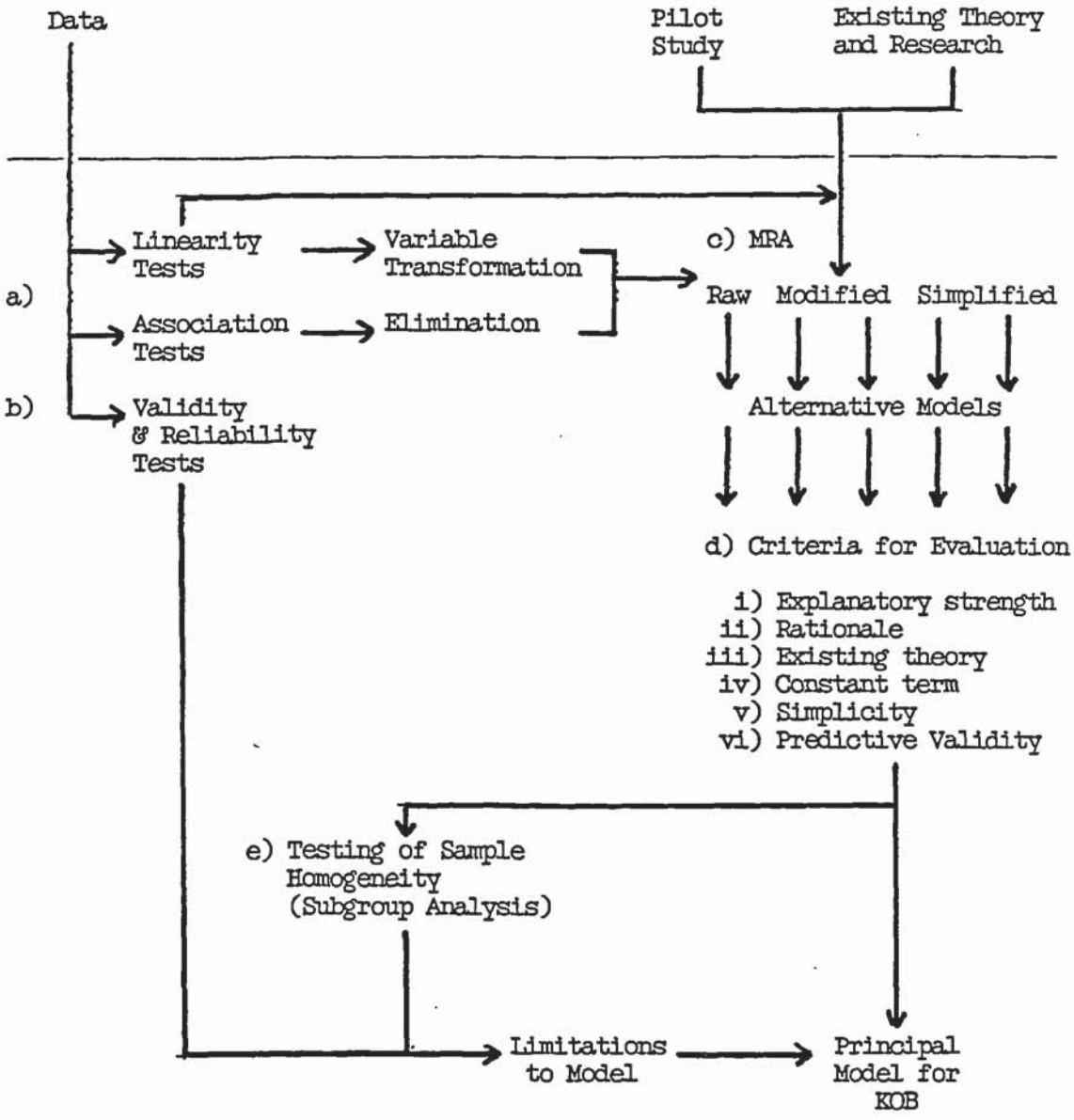
a) The linearity and strength of interrelationships between variables is examined to facilitate detection and elimination of effects which would interfere with, or invalidate, the statistical process.

b) The validity and reliability of certain variables is examined, where this is in doubt, in order to identify possible weaknesses in the substantive results of the analysis.

Substantive Analysis-

c) The main substantive analysis consists, initially, of the generation of a regression equation by free entry of variables into the analysis. Subsequently, alternative formulations are derived according to preconceived hypotheses deriving from either existing theory and research or from the tentative conclusions of the pilot phases of study.

FIG. 6.1 A Schematic Representation of the Analytical Procedure.



Simplification by progressive elimination of the variable making the least contribution to explanation leads to further multiplication of alternatives formulations.

d) Alternative equations are subjected to evaluation and comparison according to a set of criteria comprising; strength of explanation, provision of theoretical rationale, support from other research, size of constant term, simplicity of construction and predictive validity. The model proving both adequate and superior in these terms is considered to be the principal model for the KOB concerned.

e) A further test is made as to the extent to which the sample may be considered to be homogeneous with respect to the principal model. Significantly deviant subgroups indicate types of shop to which the model is not applicable.

At each stage the two KOBs are considered separately.
Initially the main techniques of analysis are briefly described.

6.1 Statistical Techniques

The statistical analysis was carried out using SPSS on the University of Aston Harris H800/500 computer. The the main techniques used are; correlation analysis, scattergram analysis and multiple linear regression. Special consideration is also given to the subsidiary issues of statistical significance and a technique

for assessing the predictive validity of MRA derived equations.

6.1.1 Bivariate Correlation Analysis -

Bivariate correlation is a measure of the extent to which change in a variable is related or associated to change in another variable. A correlation coefficient quantifies this relationship. Although there are a number of different ways to calculate the coefficient, the present analysis confines itself to Pearson product moment correlation, this is appropriate to variables at the interval and ratio level of measurement. Pearson's "r" summarises the strength of a linear relationship using a single value within the range -1 and +1. These extremes indicate a strong -ve or +ve association. A value close to zero indicates that there is little or no relationship. The square of Pearson's r is a measure of the proportion of variation in one variable which could be attributed to the other variable.

Correlation analysis is employed in order to establish the reliability and validity of various measures and to detect a very high degree of association. The presence of the latter gives rise to multicollinearity in multiple regression analysis.

6.1.2 Scattergram Analysis -

A scattergram is a graphical representation of the relationship between two variables. Whereas correlation simply summarises a linear association, this method allows detailed examination of deviations from general trends and facilitates the discovery of non-linear effects.

6.1.3 Multiple Linear Regression -

Whereas correlation only allows examination of two-way relationships, multiple linear regression analysis (MRA) permits the simultaneous examination of the combined effect of several "independent" variables upon a single "dependent" variable. Output takes the form of an equation or model of the type:

DV = B1 x IV1 + B2 x IV2 .....Bn x IVn + C

where:

DV is the dependent variable

IV1....IVn are independent variables 1 to n

B1 ...Bn

are the coefficients of variables 1 to n

C is a constant

MRA is at its most flexible when independent variables are added to the analytical modelling process one at a time in what is known as a "stepwise procedure". Using this method the individual effects and interactions can be closely monitored as each variable is added to the equation. Various statistics can be calculated relative to this analysis. These relate to:

a) The strength of the relationship between the combined independent variables and the dependent variable.

b) The determination of the order in which variables are entered into the equation.

c) The relative influence of the variables in the equation at

any stage.

Multiple R, R squared and the residual mean square are all measures of the strength of the equation. Multiple R is analogous to the correlation coefficient (Pearson's r) described earlier. It summarises the relationship between the predicted values for the dependent variable (calculated from the regression equation) and the actual values. It takes a value within the range 0 to 1; a value of 1 indicates an exact agreement. The square of multiple R indicates the proportion of the variance (the sum of squared deviations from the mean) in the dependent variable which is explained by the combined variation in the independent variables. Whereas Multiple R deals with the ratio of explained to unexplained variation, the residual mean square (or mean of squared deviations) expresses unexplained variation in absolute terms. The mean square is used both in significance testing and in assessing the predictive validity of derived expressions. The square root of the residual mean square is known as the " standard error of the estimate" (SEE).

Statistics associated with the determination of the order in which variables enter the regression equation are the partial correlation coefficient, the significance, and the tolerance level. The partial correlation coefficient is a measure of the association between a variable and the dependent variable when the influence of the other independent variables already in the equation is taken into account. It is used to evaluate the contribution a particular variable would make if it were included in the analysis. As a rule

the variable with the highest partial correlation is entered at the subsequent step in the analysis but exceptions may be made (or the analysis may be terminated) if significance or tolerance levels fall below certain limits. Significance is determined by the ratio of regression (explained) to residual mean squares, this is assumed to conform to the F distribution. When a variable cannot make a significant contribution to the explanation it is excluded. Tolerance is a measure of the proportion of the variance in a given variable that is not accounted for by other variables already in the equation. Where tolerance is very low a variable may itself make a significant contribution to explanation but its inclusion may cause the contribution of other variables to become insignificant. In practice it was considered most appropriate to let the analysis proceed without regard to these limitations and to select significant variables for exclusive inclusion in further analysis.

The relative influence of variables included in multiple regression analysis is given by the "beta weight". This statistic, which takes a value between zero and unity, indicates the relative influence of variables in a regression equation in terms of their effect upon the dependent variable.

A number of problems arise in the application of multiple regression analysis. These may be summarised as non-linearity, multicollinearity and non-normal distributions. Non-linearity is a problem because MRA derived models can only deal with linear relationships. Where a non-linear relationship occurs this must be detected and can often be overcome by variable transformations

using logarithmic functions; these have the effect of converting curved relationships to linear ones. Multicollinearity arises when two or more variables are sufficiently correlated (usually over 0.9) to give rise to zero divisors during calculations and consequently meaningless results. Such relationships need to be detected and eliminated before the analysis is commenced. A more moderate degree of association may cause problems due to instability of regression coefficients (Nie, Hull, Steinbrenner and Bent 1975:340). Non-normally distributed residual deviations give rise to problems in computing significance levels.

In the present study a deal of effort has been expended in attempting to detect sources of error such as those outlined. In addition, it should be noted, the study is so designed that where an error may be thought to lead to problems in generalisation, this situation will automatically be apparent from a lack of predictive validity when the model is retested on independent data.

6.1.4 Statistical Significance

Whereas a correlation coefficient refers to an actual relationship between variables for a specific set of subjects (or cases) which it describes, significance deals with the relationship between the situation within that sample and that which occurs within the population from which it is randomly drawn. A "significant" result is one in which the observed relationship occurring in the sample has a low probability of being due to chance. In such cases there is a high probability that a relationship of some sort also occurs in the population from which

the sample was randomly drawn. Significance is dependent upon the size of the sample and the strength of the relationship observed. It is conventional to accept a statistical significance level of 0.05 (95% probability that an occurrence is not due to chance) and this is the procedure adopted here.

Significance is determined in practice by comparing a given measure of the strength of a relationship with a calculated figure which represents the maximum value which will occur by chance given the number of degrees of freedom (dependent upon sample size and the number of variables involved) and the type of distribution to which the measure is expected to conform. Two such distributions are used in the present analysis; the "T" distribution and the "F" distribution. The T distribution is used to determine the significance of bivariate correlations, its value is based on the size of the correlation coefficient and sample size. The F distribution is used to determine the significance of regression equations and the individual component variables, it is calculated as a ratio of explained (regression) to unexplained (residual) mean variance . In these applications the distributions are well known and widely used. The F distribution is also used to determine the extent to which hypotheses based on multiple regression analysis are supported in a retest on independent data and the technique will be outlined in detail.

6.1.5 Assessing the Predictive Validity of MRA Models

Multiple Regression Equations may be regarded as hypotheses which can be subjected to testing on a separate data base (test data) to that from which they were derived (source data). Whether or not the results may be considered to support the hypothesis is dependent upon the comparison of actual values for the dependent variable and those which are predicted by the equation. Such a comparison must take into account both the accuracy of prediction attributed to the model and the probable sampling error given that the two samples are randomly drawn from the same population. Prediction accuracy is determined by comparison of the residual mean square, for the source data, with the mean deviations from predicted values for the test data. Where the value relating to the test data is smaller, the hypothesis is considered to be supported since the model "fits" the test data better than the data from which it was derived. Where the mean square for the test data is larger a test is made as to the probability that this is due to sampling error. The test uses the F distribution. The F value is calculated as follows:

$$F(DF1,DF2) = (MS2/DF2) / (MS1/DF1)$$

Where:

MS1 = Sum of squares for deviations from the regression line in the source data.

MS2 = Sum of squares for the deviation from expected values for the test data

DF1 = The residual degrees of freedom for the data from which the equation was derived ([n - k - 1], where n is the number of cases and k the number of variables in the equation).

DF2 = The degrees of freedom in the test data (as above but with k set to unity since the expected value represents a single computed figure i.e. n-2).

The resulting value is compared with that for an F distribution (with the appropriate degrees of freedom) at a .05 confidence level. Where the former exceeds the latter it is 95% certain that the excess deviation in the sample is not due to sampling error and the null hypothesis is supported.

Throughout this description the terms "related" "explained", "dependent" and "independent" have been used according to statistical convention. It is assumed that so-called independent variables explain dependent variables although in fact no such causal relation can be safely inferred using this method. The direction of causation may be opposite to that implied or the result of dependence of both upon some third party. In the following analysis constant reference is made to the need to establish apparent causal connections by the provision of a theoretical justification or "rationale" for the phenomenon under consideration.

6.2 Operational Analysis

The operational analysis is concerned with the validation of certain assumptions which have been made about the data. These relate to the validity of the indicator of performance, the reliability of other variables, the linearity of independent-dependent variable relationships and the degree of association between independent variables:

1) The extent of intercorrelation between independent variables - Earlier it was noted that a very high degree of intercorrelation between, independent variables entered into MRA, prevents certain calculations from being made. Such relationships need to be identified and eliminated.

2) Non-linearity in dependent-independent variable relationships - MRA cannot take account of curvilinear relationships between variables and these must be eliminated by means of logarithmic transformation or other appropriate methods. Other non-linear effects are also noted. Scattergram analysis of dependent-independent relationships is used for this purpose.

3) Validity of the indicator of performance - The presence of a strong association between the mean number of customers in a shop (CUS) and sales performance is a plausible but untested assumption. The relationship between CUS and a

limited measure of actual sales (TAK) is examined in order to determine the strength of the link between them. The possible existence of intervening factors is also examined.

4) Reliability of time-sampled measures - Variables such as PED and CUS are subject to uncertainty on the grounds that, although they are intended to represent the situation facing a shop during the entire working week, the measurements actually taken only cover a very short period of time. If it is established that the results obtained during such a time-period are repeated during other such periods, the measurement of the variables concerned would be shown to be reliable. For the purpose of testing this proposition, the individual measurements for CUS, TAK and PED are randomly assigned to two groups and the association between group totals is calculated.

The two KOBs studied are treated independently.

6.2.1 Greengrocers

1) Intercorrelation leading to Multicollinearity -
A complete set of correlation coefficients is presented in Appendix E. Examination of these reveals that in spite of moderate association between many of the variables, none are sufficiently high (0.9 or over) to give rise to problems with the analysis.

2) Non-linearity in Dependent-Independent Variable Relationships -
Scattergrams illustrating the relationship between each independent

variable and the dependent variable (CUS) were examined. No curvilinear effects were apparent and no transformations were made.

3) Validity of the Indicator of Performance -

Table 6.1 presents a breakdown of the extent of association between CUS and TAK for individual and aggregated measures. When all the measures are aggregated (7 occasions) a Pearson correlation coefficient of almost 0.9 is obtained indicating a remarkably high degree of association between the two variables. Examination of correlations between individual measures (CUS1 with TAK1 etc.) also reveals an association although in no individual case was this as high as for the aggregated measures. This tends to suggest that, although even individual measurements confirm the strength of the link between customers and sales, some random error exists which tends to cancel out when measures are aggregated. It is possible that if a larger number of measurements were made the aggregate association would be even larger. A test was made for the possible intervention of certain variables into the relationship between CUS and TAK. It was considered that certain factors might promote the tendency for customers to browse in a shop without subsequently making a purchase. Variables representing these influences were examined using MRA to measure their contribution to the explanation of variation in TAK when the effect of CUS had already been taken into account. Variables included were; trading floorspace (UNITS), frontage (FRON), extent of self-service (SELF) and pedestrian traffic (PED). In no case did any of these variables make a significant contribution.

TABLE 6.1 Greengrocers: The Association Between Takings and Mean Customers in a Shop for Aggregated and Individual Measures.

Type	Number of Individual Observations	Customers Variable	Takings Variable	Pearsons r	r squared
a) Aggregated	7	CUS	TAK	0.90	0.81
b) Individual	1	CUS1	TAK1	0.76	0.56
	1	CUS2	TAK2	0.75	0.55
	1	CUS3	TAK3	0.65	0.42
	1	CUS4	TAK4	0.57	0.33
	1	CUS5	TAK5	0.85	0.68
	1	CUS8	TAK8	0.79	0.64
	1	CUSX	TAKX	0.88	0.80
c) Partially aggregated	3	CUS1	TAKI	0.72	0.51
	4	CUSII	TAKII	0.73	0.52

TABLE 6.2 Greengrocers: Association Between Subgroups of Time-Sampled Variables Comprising Randomly Allocated Individual Measures

Variable	No. of Individual Measures Group 1	Group 2	Pearson Correlation (r)	r Squared
Customers (CUS1..)	5	5	0.92	0.84
Takings (TAK1..)	3	4	0.72	0.51
Pedestrian Traffic (PED1..)	3	3	0.89	0.79

In conclusion it appears that in the case of greengrocers, mean customers is a very adequate indicator of actual sales performance. Around 80% of variance in takings is explained by the mean number of customers. Of the remainder the evidence points to its being random rather than the result of a systematic effect.

4) Reliability of Time-sampled Measures -

Individual measures of customers (CUS1, CUS2 .....) were randomly assigned to two groups A and B. The values for each group were summed and the resulting sets of values (CUSA and CUSB) subjected to correlation analysis. This process was repeated for takings and pedestrian traffic. The results of this analysis are presented in Table 7.2. In all cases a reasonably high degree of association is encountered, indicating that the results obtained on one set of occasions are repeated to a large extent in the second instance. The results in the case of PED and CUS are extremely satisfactory with 79% and 84% of the relative variation between measurements in one group being repeated in the second group of measurements. For TAK the degree of repeatability is lower (although still considerable) indicating a greater instability in relative takings when measured on different occasions. Such an effect tends to support the earlier conclusions that the validity of takings would be higher if a greater number of measurements had been taken or measurement periods had been longer.

6.2.2 Gent's Fashion Outfitters

1) Intercorrelation leading to Multicollinearity -

A complete set of correlation coefficients is presented in Appendix E. Examination of these reveals that in spite of moderate to high association between many of the variables only two variables are sufficiently highly correlated (0.9 or over) to cause problems with calculations carried out in the course of MRA. These variables, the two measures of self-service SELF and SELFS (r=0.93), were combined into a single weighted indicator by dividing them by their respective means and summing the resulting values.

2) Non-linearity in Dependent-Independent Variable Relationships -

Scattergrams illustrating the relationships of each independent variable with the dependent variable were examined. There was a complete absence of curvilinear effects and no variable transformations were made. A large number of variables displayed a tendency for points to cluster in the bottom right hand corner of the scatterplot. This type of situation is illustrated in Figs. 6.5-8. It will be useful to consider the possible significance of this effect.

A pattern of plots, in which the points cluster exclusively in one half of the figure bounded by the diagonal from the origin, is indicative of a situation in which high scores on one variable are always accompanied by high scores on the other variable although the reverse is not the case. In the present situation mean customers in a shop (CUS) occupies the vertical axis and a high

TABLE 6.3 Variables Showing a Tendency Towards Being a Necessary But Not Sufficient Condition for a High Value for Mean Customers in a Shop.

Variable Name	Description
PTAG	% of Goods displaying price information
IND	Number of Specified items displaying price information
XATT	Exterior display attractiveness
IATT	Interior display attrativeness
XEQ	Grade of exterior equipment
IEQ	Grade of interior equipment
MIND	Ownership Type
SELFS, SELF	Extent of Self-service
PCSTO	% of specified lines on sale
NOTH	Number of other shops within 100yds
CSIZ	Physical size of shopping centre
FAN	Centrality to other shopping
H1	Hierarchical grade of shopping within 100yds
URP	Usually resident population of catchment
OCAR	% of car ownership within catchment
PED	Pedestrian Traffic

See Chapter 5 for precise definitions.

score on this is always associated with a high score on the other variable. A high score on the latter may be associated with either a high or a low score on CUS. It might be considered that a high score on such a variable is a necessary, but not sufficient, condition for a high value of CUS although such a conclusion implies making an assumption as to the direction of causation.

The variables which show this tendency are listed in Table 6.3, it can be seen that they include almost all the measures of location as well as self-service pricing, ownership type and attractiveness.

Although it is not possible to adequately transform variables to eliminate this effect, the use of multiplicative, rather than additive, variable interrelationships provides an appropriate means of representation in a mathematical model. Unfortunately this technique tends to rely on arbitrary judgements if the analysis is not to become hopelessly overcomplicated by the creation of a large number of highly correlated compound variables. Some difficulty might also be encountered in justifying this type of manipulation from a theoretical point of view. The investigator has preferred, at this initial stage, to rely on the intuitively more meaningful raw variables. Later (see section 6.3.2) the effect of a number of theoretically important variables will be enhanced by the above method to apparently good effect.

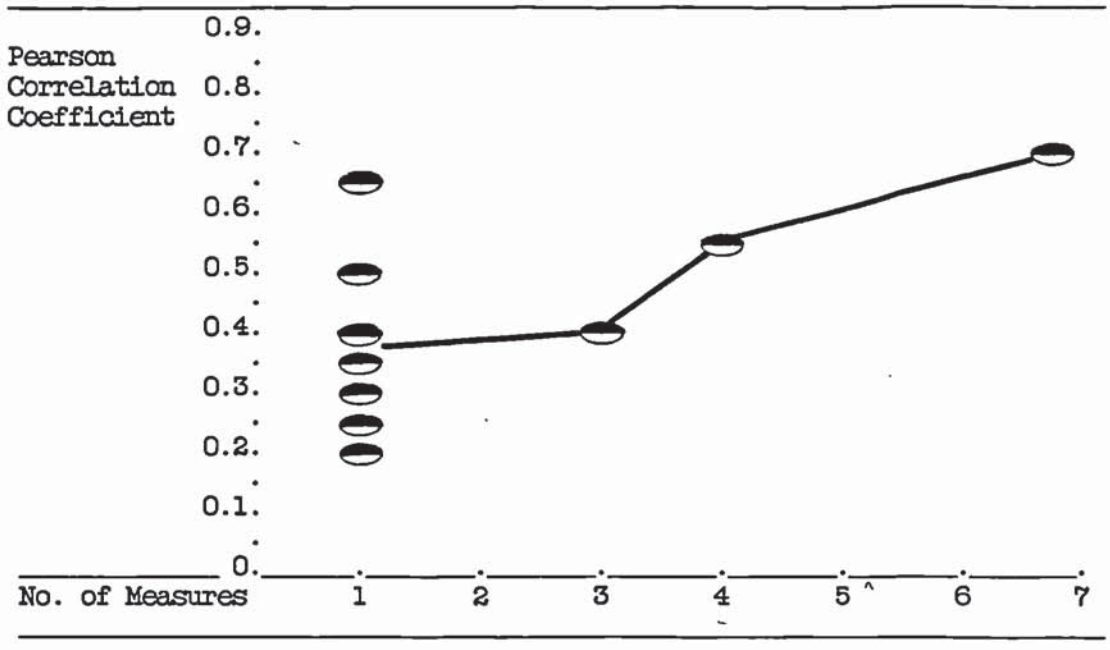
3) Validity of the Indicator of Performance -

Table 6.4 presents a breakdown of the degree of association between customers and takings both for individual and aggregated measures.

TABLE 6.4 Gent's Outfitters: The Association between Takings and Mean Customers in a Shop for Aggregated and Individual Measures.

Type	Number of Individual Observations	Customers Variable + Mean	Takings Variable + Mean	Pearsons r	r squared
a) Aggregated	7	CUS	TAK	0.69	0.47
b) Individual	1	CUS1 3.08	TAK1 14.2	0.22	0.04
	1	CUS2 2.50	TAK2 12.0	0.28	0.08
	1	CUS3 3.20	TAK3 17.0	0.24	0.06
	1	CUS4 2.60	TAK4 10.0	0.37	0.14
	1	CUS5 3.50	TAK5 10.0	0.49	0.24
	1	CUS8 4.90	TAK8 26.7	0.40	0.20
	1	CUSX 2.80	TAKX 11.9	0.66	0.43
c) Partially aggregated	3	CUS1	TAKI	0.36	0.13
	4	CUSII	TAKII	0.53	0.28

FIG. 6.2 Gents Outfitters: Convergence of Association Between Mean Customers in a Shop and Takings as the Level of Aggregation is Increased.



When all the measures are are aggregated (i.e. CUS is correlated with TAK) a correlation coefficient of 0.69 is obtained, indicating that nearly 50% of variance in takings can be attributed to the number of customers in the shop. Although these figures indicate a considerable degree of association, they are nowhere near as satisfactory as those obtained for greengrocers since nearly 50% of the variation in TAK remains unaccounted for. Such a situation tends to call into question the whole conceptual basis of the performance indicator. It is possible that some shops simply attract larger numbers of browsers than others. If this is the case, models utilising mean customers in a shop are of limited interest in a purely commercial sense. In order to pursue this issue further, two possible alternative explanations are posited. Firstly, that the variable was inadequately measured, secondly that certain factors intervene in the customers-takings relationship. These are considered in detail as follows:

a) Inadequate measurement - The possibility exists that seven two minute periods is an inadequate time-span in which to measure takings in a shop selling clothing. In many cases a customer may spend considerable time in a shop before making a purchase of fairly high value. This gives rise to a much higher degree of random error in measurement compared to greengrocers (where customers probably spend less time and less money in a given visit to the shop) as there is a much greater chance that no purchase will occur in a given measurement period. In order to investigate this possibility

individual measures of customers (CUS1, CUS2 etc.) are correlated with the corresponding measures of takings. These figures are then compared to correlations between aggregated measures in order to establish the extent of convergence from aggregation. Such convergence would be expected where lack of intercorrelation between individual measures is due to random error. Table 6.4 and Figure 6.2 present the results of this part of the analysis, they indicate that considerable convergence does in fact occur. This tends to support the inadequate measurement explanation.

b) Intervening Factors - A number of possible intervening factors exist. These are considered to increase the tendency for customers to browse without purchasing. Variables representing such influences are selected on the basis that; i) they might attract the casual passerby into the shop (shop size, frontage and pedestrian traffic) or ii) when a customer is in the shop they might give rise to a tendency to fairly relaxed search behaviour (extent of self-service, floorspace and ownership type). The method by which these were investigated involved assessment of their power to contribute to the explanation of takings over and above that portion explained by mean customers. Table 6.5 presents the partial correlation coefficients for these variables as candidates for entry at step two of MRA on takings (TAK), when CUS is entered at step 1. It can be seen that no variable is capable of making a significant contribution to this analysis. The

TABLE 6.5 Gent's Outfitters: Partial Correlation Coefficients for Selected Variables at Step 2 of MRA on Mean Takings when Mean Customers in a Shop is Entered at Step 1.

Variable	Partial Correlation Coefficient	F Statistic	Significant at 0.05
Floorspace (UNITS)	0.11	0.91	-
Frontage (FRON)	0.23	3.80	_
Self-service (SELFS)	0.19	2.40	-
Self-service (SELF)	0.17	2.04	-
Pedestrians (PED)	0.11	1.39	-
Ownership (MIND)	0.08	0.48	-

From tables the probability that F exceeds a given figure taking degrees of freedom as 69,1 is given: P [F>3.98] = 0.05

TABLE 6.6 Gent's Outfitters: Association Between Subgroups of Time-Sampled Variables Composed of Randomly Allocated Individual Measures.

Variable	No. of Individual Measures Group 1	Group 2	Pearson Correlation (r)	r Squared
Customers (CUS1..)	5	5	0.87	0.75
Takings (TAK1..)	3	4	0.07	0.00
Pedestrian Traffic (PED1..)	3	3	0.93	0.86

Note:

In general aggregation of all measurements into total index (CUS,PED etc) will have greater reliability than that indicated.

intervening factors explanation is therefore considered to be without support.

Although the analysis fails to establish a really strong link between customers and takings, there is evidence to suggest that this is due to measurement inadequacies rather than the effect of any extraneous influence giving rise to a greater tendency to browse in some shops.

4) Reliability of Time-Sampled Measures-

Individual measures of customers, (CUS1, CUS2 ..etc.) are randomly assigned to groups a and b, the values are summed for each group and the resulting sets of values correlated. This is repeated for TAK and PED. The results are given in Table 6.6. The correlation coefficients for both sets of variables are remarkably high (r squared .75 and .86 respectively), indicating that even fairly small aggregations of measurements are sufficient to reliably distinguish between shops (in fact a fully aggregated measure can be expected to be even more accurate than is indicated here).

In the case of takings the exact opposite is the case; the correlation between the two sets of measures is very low, being practically zero. Relative levels of takings appear to fluctuate quite dramatically from measurement to measurement. This applies even when as many as three measurement periods are aggregated to give a total measurement time of six minutes. These results tend to underscore the conclusions drawn in the previous section as to the inadequacy of the measurement of takings.

6.3 The Substantive Analysis

The substantive part of the analysis examines the interrelationships of the dependent variable (the mean number of customers in a shop) with the independent variables (various measures of the marketing mix employed in the shops). The aim is to assess the manner and extent to which shop performance, in terms of the number of customers, can be attributed to particular marketing practices at the interface between retailer and customer. The principal technique used is Linear Multiple Regression Analysis (MRA).

In its crudest form MRA involves entering variables, in order of their contribution to explanation of variability in the dependent variable, into an iterative process. This is terminated when all variables that are capable of making a significant contribution are included in the equation. This equation (or model) is taken to represent the definitive results of the investigation. This approach suffers from a number of defects. In the first place mathematically derived models can, at best, be considered to describe a particular situation with no causal connections, or mechanism for such, being apparent. Secondly such models cannot be confidently generalised, even when they are "significant" since this implies a qualitative generalisability rather than a quantitative one. This may be a particular problem when dealing with intercorrelated independent variables which may give rise to

unstable regression coefficients (Nie, Hull Jenkins, Steinbrenner, Bent 1976:340). A third problem is that it is unlikely that MRA will result in a unique statistical solution if it is applied in a fully rigorous fashion. This situation arises for a number of reasons:

a) A single model could be "simplified" by the elimination of the least powerful variable without much loss of explanatory power.

b) Considerations arising from earlier theory and empirical work, including the pilot phase of the present study, may indicate certain modifications that could be made to the analytical process, in particular the specification of the order in which variables are entered into the analysis.

Since multiple solutions would represent an intolerably ambiguous situation, a number of criteria were derived by the investigator, in order to facilitate selection of the most satisfactory of the alternative models. These criteria relate to; the strength of explanation of the model in quantitative terms, the theoretical rationale, compatibility with other research findings, the size of constant term, the simplicity or elegance of the formula and the predictive validity of the model when tested on an independent data set:

i) Degree of Explanation - In view of the objectives of the investigation, it is considered important that models should explain a large proportion of the variation in sales

performance between shops. Explanation of less than half the variability between shops is considered to be inadequate. All other things being equal, an equation which explains the largest proportion of variance is considered superior.

ii) Theoretical Rationale - Individual variables within the equation should be plausible in terms of the direction of influence (-ve or +ve) and their relative importance given the nature of the variable concerned. The model should include variables representing all theoretically important influences unless some justification can be found for their omission. All other things being equal, the equation with the most plausible rationale is considered superior.

iii) Compatiblity with other findings - Although almost all the variables have been found at some time or other to affect performance, a number of studies which have followed a generally similar approach to that employed here have indicated that particular variables are of principle importance in particular circumstances. Where the present results fail to support such findings, some explanation needs to be provided to account for the discrepancy.

iv) Constant Term - A large negative or positive constant term implies that, where other variables are set to zero, the shop will nevertheless experience either some trade or theoretically impossible negative trade. Unless it can be demonstrated that a given variable cannot be set to zero this

is unacceptable. All other things being equal the model with the constant nearest to zero is considered superior.

v) Elegance/simplicity - Complicated expressions increase the risk of random error in MRA. All else being equal the simplest formulations are considered superior.

vi) Predictive validity - A multiple regression equation is subject to considerable uncertainty. Valid equations should be capable of confirmation within given limits when tested on a database other than that from which it was derived. Equations incapable of confirmation are rejected. Data collected at the pilot stage of the investigation is used in this test.

Although the KOBs studied were carefully selected and suitable shops so defined as to ensure a fairly homogeneous sample, it is considered to be advisable to establish that the principal models apply consistently to all types of shop. An attempt is made to identify groups of shops with commmon characteristics which are subject to significant deviance from the behaviour described by the model. The method used involves identification of dimensions along which such effects might occur. These dimensions are selected according to the following criteria:

a) They relate to size; this is an important consideration in a study which is principally concerned with providing information relevant to the smaller retailer.

b) They relate to location; the possiblity exists that different geographical areas and different sized shopping centres may be subject to different rules.

c) They relate to the type of merchandise on sale. Although it has been assumed that the sample represents a fairly homogeneous trade in terms of product. It is necessary to investigate to what extent merchandise differences affect the behaviour of shops relative to the model.

d) They relate to groups of shops with a common trading policy, i.e. shops operated by a single organisation. It may be possible to detect the influence of unmeasured influences by this means.

Arbitrary cut-off points are imposed and the samples split into two or more subgroups for each dimension. Mean square deviations in performance (from that calculated using the model) are then compared with the mean deviation for the sample as a whole. Tests of significance are applied where the subgroup deviation is the higher of the two values. The technique is largely similar to that used in assessing predictive validity.

6.3.1 Greengrocers

1) Derivation of MRA models -

All the independent variables were entered into stepwise MRA (with CUS as the dependent variable) without imposing any restriction as to significance or number of variables. Those variables which

offered the most powerful significant combination were re-entered exclusively into a further analysis. The analysis was terminated when the significance level for additional variables fell below 0.05. The resulting model is presented as model I in Table 6.7. This model is based on five independent variables of which the most important are PED and SHEL.

At the pilot stage it was found that PED and SELF were the principal influences on performance, the effectiveness of such a combination when applied to the current database was investigated. A second model was derived by specification of PED and SELF as the variables to be entered in the first two steps of the analysis, additional variables were selected on the basis that they add to total explanation while not seriously interfering with the significance of PED and SELF.

Further equations were derived by termination of the analysis at successively earlier steps in the process of building these two basic models. The complete set of equations is presented in Table 6.7

2) Evaluation of MRA derived models

i) Strength of Explanation -

Each the equations account for over 50% of the variance in CUS and are satisfactory in terms of this criterion. Equation VI is weakest (64%), while equation I is the most powerful, it accounts for almost 80% of variance.

TABLE 6.7 Greengrocers Shops: Formulae Derived from Multiple Regression Analysis of the Main Database.

Equation		Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Constant
I	Free (5v)	+.14PED [0.52]	+.045SHEL [0.22]	+2.36MIND [0.22]	+0.048OCAR [0.15]	+0.63IATT [0.17]	-4.3
II	Free (4v)	+.15PED [0.58]	+.053SHEL [0.26]	+2.35MIND [0.22]	+.050CAR [0.16]		-3.5
III	Free (3v)	+.15PED [0.58]	+.06SHEL [0.30]	+2.45MIND [0.23]			-0.6
IV	Free (2v)	+.17PED [0.64]	+.075SHEL [0.37]				-1.1
V	Modified (3v)	+.17PED [0.66]	+.015SELF [0.20]	+.057OCAR [0.18]			-2.7
VI	Modified (2v)	+.17PED [0.76]	+.02SELF [0.23]				+0.7

(Beta Weights)

Where:

Equations take the form:

CUS = Variable 1 + Variable 2 .....+ Constant term

CUS = Mean number of customers in the shop.
SHEL= Shelf space devoted to specified items.
OCAR = Percentage of households in catchment of shopping centre area having access to a car.
IATT= Attractiveness of interior displays.
PED = Mean number of pedestrians passing within 20 feet of the shop during 1 minute.
MIND = Status as multiple or independent (less than 10 shops under operator control)

(For precise definitions see chapter 5)

ii) Theoretical Rationale

Both sets of equations include pedestrian traffic (PED) as the most important single determinant of performance. The first model includes shelf space (SHEL) and ownership type (MIND) jointly as the second most important influence while the second model incorporates self-service (SELF) in this capacity. Car-ownership among the population served (OCAR) appears as a minor influence in both models. Attractiveness of interior displays (IATT) appears as a minor influence in the first model only.

The importance attached to pedestrian traffic would appear to signify that, to a large extent, customers choose a shop that they can visit while engaged in other activities, without the necessity for even a minor detour (the measure involved pedestrians passing within 20 feet of the shop). One theory which might account for such a phenomenon is that of product class; this has been given detailed consideration in Chapter 3, it is concerned with differences in consumer buying behaviour for different types of goods. Two main categories are identified, those of convenience and comparison goods, only the former need concern us here. A convenience good is one which customers are willing to spend only a minimum of time and effort in obtaining. The author has argued earlier that the principal determinants of the position of a good in the convenience-comparison continuum are the frequency of purchase and the perceived homogeneity of the shopping environment for that good.

Greengroceries can be assumed to be convenience goods on the

basis that they have to be purchased relatively frequently (weekly or more often) on account of the perishability of many items. According to the above theory, customers consider the costs of making comparisons between greengrocery shops to be high relative to the potential gains. In such a situation purchases are made with a minimum of effort and locational convenience influences shop choice to a large extent. Although it might be expected that "locational convenience" might imply location near to residences or workplaces, taken to an extreme even this degree of effort is unnecessary if customers are able to combine shopping for this good with other activities. In consequence, it can be expected that shops which are located adjacent to such movements (i.e. the busiest thoroughfares) will be the most successful.

Other variables are relatively minor in their individual effect, they include measures of shelf space, ownership type, shop attractiveness and car ownership. In view of the nature of many of these variables, it is proposed that a major preoccupation of customers for these goods may be with product quality (this was not directly measured in the study) owing to the perishable and easily-damaged nature of the goods concerned. Customers probably favour sales methods that allow them to satisfy themselves, that products are of the required quality. One very obvious method to ensure this is for customers to select merchandise themselves. In consequence, customers prefer shops that permit self-selection of most items.

Similar considerations of product quality may apply to the apparent advantage enjoyed by multiple retailers (MIND) according to the first model. In many ways it is surprising that such an

effect should occur in this KOB (it was selected because of the strength of the independent retailer), however, it may be that customers percieve multiples to be identified with higher quality products and to have more to lose from sharp-practice.

Shelf space (SHEL) and interior attractiveness (IATT) both relate to issues of display. A larger area devoted to displaying goods may have several attractions for the customer:

a) Larger displays may facilitate a thorough examination of the goods on offer, before selection is made.

b) Larger displays may be more noticeable, facilitate advantageous display techniques and, if devoted to a single variety, may draw the customers attention to that product.

IATT refers specifically to the attractiveness of interior displays. Apart from the obvious impact of a high score on this variable, it may be that in this particular case, customers use interior attractiveness as a guide to product quality.

In view of the importance attributed to quality in these explanations it may be considered in retrospect that the failure to measure this variable directly was an important omission. Even so it cannot be assumed that this would have affected the results.

The percentage of households having access to a car (OCAR) appears in both sets of equations. The larger this percentage the better the performance of a shop. It might be expected that car-owners, being more mobile, are likely to regard distance as less of an obstacle to search, this group is theoretically more likely to engage in comparison shopping behaviour for a given good. Such an

effect is the opposite to that found here. An alternative theory is that suggested by Kirby (1976). This author notes that in areas where medium-sized supermarkets are a feature of the shopping environment, the development of superstores in the vicinity, although detrimental to supermarket trade, actually benefits that of small grocers. This occurs because trips to superstores tend to be made less frequently than to supermarkets owing to the greater travelling distance involved for many customers. In consequence there is a requirement for more frequent "topping up" between visits and such purchases are made strictly on the basis of convenience. This effect might be expected to benefit greengrocers owing to the necessity for very frequent purchase patterns. If it is assumed that car-owners make greatest use of superstores (see Chapter 3) owing to the requirements of distance and transportation, this theory might provide an explanation of the positive effect of OCAR.

A number of intuitively important influences are not represented in any equation. Most important of these are the number of lines and the price level. It is to be expected that an increased number of lines would be attractive to customers since they can satisfy a greater proportion of their requirements in a single shop. This might be expected to be an important effect if customers wish to minimise shopping effort. This is clearly not the case; apart from its non-inclusion in any equation the number of lines (LIN) shows little direct association with CUS (r squared = 0.26). This may

plausibly arise either from apathy on the part of many consumers, who simply buy whatever is on offer on a particular day at the shop of their choice, or to the limited nature to typical purchase requirements.

In the case of price it is quite striking that no measure is particularly associated with performance (correlation coefficients of HIPRI and LOPRI with CUS are 0.04 and -0.06 respectively). Customers may consider that the attraction of low prices is offset by a deterioration in product quality.

The absence of any given variable from an equation does not imply that its effect is negligible, merely that within the range of empirical values encountered in the study any such effect was not measurable. Empirically determined ranges for each variable are presented in Appendix D. It may well be that if such a variable were manipulated outside these parameters it would become effective in determining performance.

iii) Compatibility with other research

In general, the effect noted for the location variable (PED) is consistent with the importance which has been attached to location by retail practitioners and theorists. That the majority of research into marketing mix variables has concentrated on this single aspect has already been noted (see chapter 3). More specifically the results of the pilot study support the pre-eminence of pedestrian traffic. Two other studies have concentrated on using MRA to analyse the effect of marketing mix variables on performance in convenience trades.

Chell and Haworth studied magazine sales in newsagents shops, they found that pedestrian traffic (measured on an 8 point scale) is important in determining sales of shops in rural and town centre locations. This study also found that shelf-space had some influence on sales for all shops.

Jones and Mock (1984) studied convenience grocery stores. They found that pedestrian access (not defined) is the principal determinant of sales performance for shops in city centre locations. Beyond this the two studies diverge from the present findings. Chell and Haworth found that road traffic is the principal influence on sales for shops in suburban locations while such factors as product mix, competition and social class are also important. Jones and Mock found that many location variables such as number of competitors and car parking play a significant role.

In addition to the obvious differences in the nature of the KOBs concerned these studies are not strictly comparable with the present one in a number of important ways:

a) Each study was confined to shops belonging to a single multiple retailer.

b) Different equations were derived according to the type of centre involved.

c) Jones and Mock's study relates to the USA and was confined to the study of location variables.

These considerations indicate that the three studies are not strictly comparable and this may account for the differences noted.

iv) Constant Term

Although large constants are theoretically undesirable since large negative constants of the type found in the majority of these equations might be taken to imply a theoretically impossible situation of negative trade. This is mitigated by considerations relating to the assumed parameters of the study. Large constants may in some cases serve to offset large positive minima for the independent variables. In the case of Equation I setting each variable to an empirical minimum results in a positive contribution of 3.75, this goes a considerable way towards offsetting the negative constant of 4.3. The very considerable contribution from the independent variables is largely due to OCAR which has minimum of 40(%); all equations in which this variable appears, therefore, have large negative constants. Although no equations were eliminated for the foregoing reasons, equations III and VI are to be preferred on the basis of this criterion.

v) Simplicity/Elegance

This criterion is of little importance in terms of deciding between equations for this KOB. In general, the expressions that are to be preferred in terms of simplicity are less satisfactory in other terms respects.

vi) Predictive Validity

Predictive validity is determined by testing each equation on independent data collected during the pilot study. Measurement of all variables is precisely comparable to that in the main study

TABLE 6.8 Greengrocers Shops: Evaluation of the Predictive Validity of Alternative Regression Equations using a Retest on Independent Data.

Regession Equation		Phase	Degree of Freedom	Sum Sq. Dev.	Mean Sq. Dev	Ratio of Mn. Sq.(F)	F(0.05)	F>F(0.05) (Significant deviation)
I	Free	Main	51		2.12			
	(5v)	Pilot	23	76	3.30	1.56	1.74	-
II	Free	Main	52		2.28			
	(4v)	Pilot	23	86	3.74	1.64	1.74	-
III	Free	Main	53		2.48			
	(3v)	Pilot	23	135	5.86	2.07	1.72	*
IV	Free	Main	54		2.83			
	(2v)	Pilot	23	161	7.00	2.50	1.72	*
V	Modified	Main	53		3.22			
	(3v)	Pilot	23	90	3.91	1.20	1.72	-
VI	Modified	Main	54		3.45			
	(2v)	Pilot	23	120	5.22	1.51	1.72	-

Regression equations are detailed in Table 6.7

Equations are derived from analysis of the main data base and tested on data collected during the pilot study.

Degrees of freedom for the main equation are calculated as follows:

DF = Number of Cases - Number of Variables in Equation - 1

Degrees of freedom for the test data are calculated as follows:

DF = Number of Cases - 1 (computed value for CUS(E)) - 1

Mean square value is the sum of squared deviations divided by DF.

F is the ratio of Main mean square deviation to Test (pilot) mean square deviation. Where the deviation for the main data is larger the equation fits the test data better than the data from which it is derived and the F-test is superfluous.

with two main exceptions. SHEL was measured in November 1984 and may be subject to error arising from marketing policy changes since the original data was collected. In addition this and the bulk of data collected (Autumn 1983), may lack comparability owing to seasonal variations.

The results of this analysis are presented in Table 6.8. Equations I, II, V and VI are corroborated. Rather surprisingly the simplified versions of the first model (Equations III and VI) are not supported, this suggests that the effects noted for PED combinations of PED and SHEL (and MIND) do not apply to the pilot data, even though these equations are less precise than those containing OCAR and IATT as well.

vii) Conclusion

The results of the foregoing analysis are summarised in Table 6.9. Although a number of equations are satisfactory on all the evaluation criteria, Equation I is considered to be superior on account of the strength of explanation attributed to it. From now on this model will be reffered to as the "principal model for greengrocers shops". The homogeneity of the sample relative to this model will now be examined.

3) Subgroup Analysis

The relationship between the actual value of CUS and the value which is calculated from the principal model for greengrocers shops is represented in Fig. 6.3. It is clear that a number of shops show considerable deviation from the behaviour described by the model. In order to determine whether these deviations are due to random

TABLE 6.9 Summary of the Substantive Analysis for Greengrocers: Evaluation of Regression Equations.

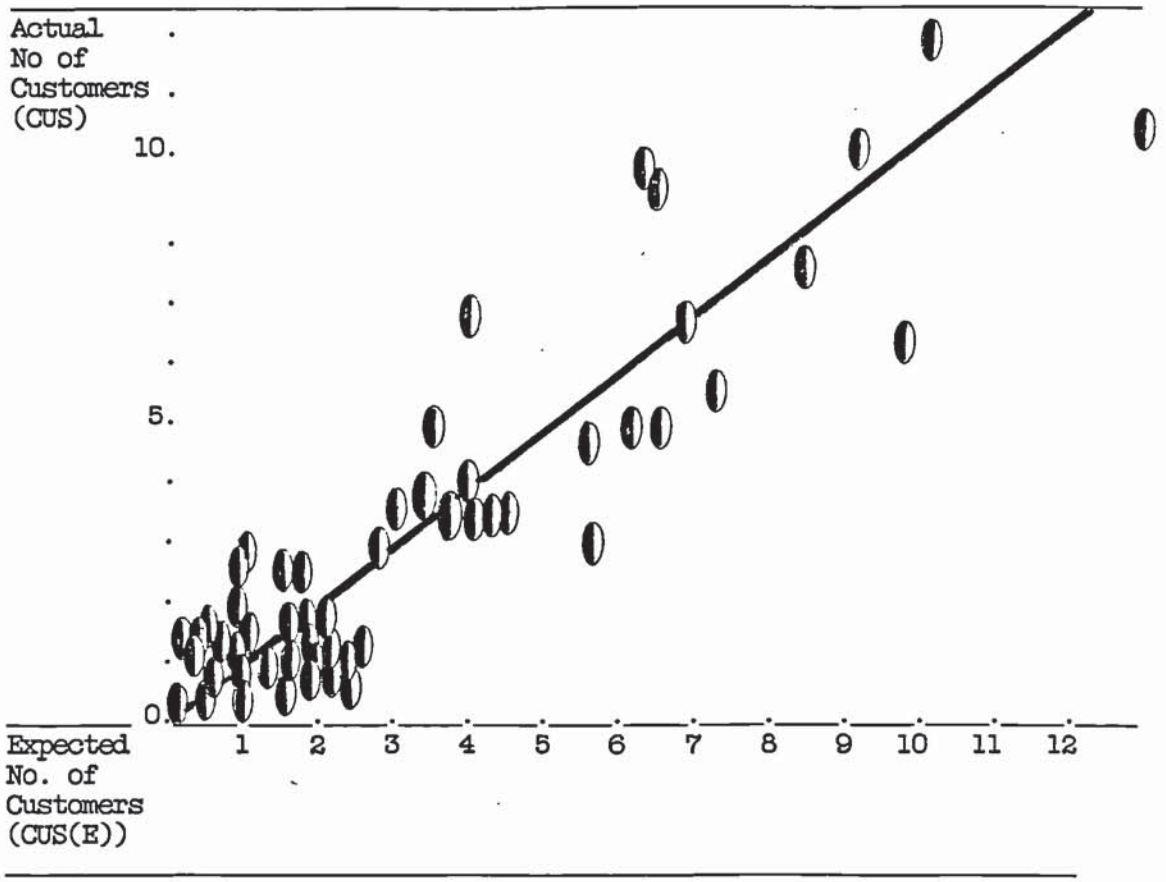
Regession Equation		R sq.	Theoretical Validity				Retest	Fail Score
			Order of Influence	Direction of Effect	Missing Influences	Const.		
I	Free	0.79	Satis.	Satis.	Satis.	-4.30	Satis.	0
II	Free	0.77	Satis.	Satis.	Satis.	-3.50	Satis.	0
III	Free	0.75	Satis.	Satis.	Satis.	-0.62	Fail	1
IV	Free	0.70	Satis.	Satis.	Satis.	+1.10	Fail	1
V	Modified	0.67	Satis.	Line -ve	Satis.	-2.68	Satis.	0
VI	Modified	0.64	Satis.	Satis.	Satis.	+0.73	Satis	0

The structure of Equations I to VII is given in Table 7.7

Fail score is the cumulative number of criteria on which an equation is unsatisfactory.

Large negative constants are acceptable if offset by the positive effect of large positive empirical minima for independent variables in the equation.

FIG. 6.3 The Principal Model Relating to Greengrocers Shops: The Deviation of Individual Shops from Expected Values for the Mean Number of Customers in a Shop.



Where:

CUS = The number of Customers in the shop (mean value of 10 measurements taken during the main phase of data collection)

CUS(E) = 0.136PED + 0.045SHEL + 2.36MIND + 0.0480CAR + 0.63IATT - 4.3 values for SHEL,ADV,UNITS and FAN measured during the main phase of data collection were used to calculate an expected value for mean customers.

The diagonal shows the position on which all points would lie if 100% explanation were achieved by the formula.

error or can be attributed to a systematic error applicable to shops of an identifiable type, the sample is subdivided into two or more parts along a number of dimensions. These were selected according to criteria set out in a previous section. The groups are formed by imposing arbitrary divisions along these dimensions according either to established practice or the researchers own judgement. The subgroups are defined as follows:

Shop Size and Organisation Size

a) Small Shops - The maximum trading floorspace encountered during the study was 800 sq. ft. For this dimension a cut-off of 500sq. ft. is imposed and those shops with a trading floorspace of less than this are included in this subgroup.

b) Large Shops - Those shops with a trading floorspace of 500sq.ft. or greater.

c) Small Organisations - The accepted convention is used; a small organisation is one operating less than 10 branches, shops belonging to such organisations are included in this subgroup.

d) Large Organisations - Shops operated by organisations with 10 or more branches.

e) Small Organisations and Shops - Small shops operated by small organisations.

f) Large Organisations and Shops - Large shops operated by large organisations.

Shopping Centres

g) Small Centres - Shops in Centres with a CSIZ value of less than 10 (centres composed of less than 10 adjacent hexagonal areas of 100 yds. radius - see Chapter 5).

h) Medium Centres - Shops in centres with CSIZ value from 10 to 19.

i) Large Centres - Shops in centres with a CSIZ value of 20 or more.

j) Leicester - Shops in the vicinity of Leicester.

k) Coventry - Shops in the vicinity of Coventry.

l) Walsall - Shops in the vicinity of Walsall.

m) Bromsgrove and Kidderminster - Shops in the vicinity of either town.

n) Leamington - Shops in the vicinity of Leamington.

Mix of Goods

o) High Quality - Shops offering mainly fresh undamaged merchandise and operating a system of self-selection for all goods.

p) With Grocery - Shops selling a selection of groceries in addition to fruit and vegetables.

q) With Flowers - Shops selling flowers in addition to fruit and vegetables.

r) Highly Specialised - Shops offering only fruit and vegetables.

s) Medium Specialised - Shops selling fruit and vegetables and one other category.

t) Mixed - Shops selling fruit and vegetables, groceries and flowers.

Individual Firms

u) Firm A - Shops owned by Firm A

Mean squares are calculated for each group by dividing the sum of squared deviations by the a proportion of the sample degrees of freedom according to the ratio of group size to sample size. Where the subgroup mean square deviation is higher than that for the whole sample, a test for significance is carried out using the F distribution as described in section 6.1. The results of this analysis are presented in detail in Table 6.10 and summarised graphically in Fig.6.4. A number of interesting effects are evident. Firstly, that the smaller shops and smaller organisations show a greater degree of conformity to the model than larger shops and organisations. Secondly, that shops in medium-sized centres show greater conformity to the model than those in other types of centre. Thirdly, that shops in Bromsgrove and Kidderminster, shops selling higher quality goods, those specialising exclusively in fruit and vegetables, and those belonging to Firm A (the only multiple among firms studied) all show greater than average deviation. Examination of those groups with greater than average mean deviation reveals that in no case is the deviation significant at the 0.05 level, consequently that the effects noted can be ascribed to random error. It is concluded that the sample is remarkably homogeneous with regard to the application of this model.

TABLE 6.10 The Principal Model Relating to Greengrocers Shops: Analysis of the Distribution of Unexplained Variance Among Various Subgroupings.

Subgroup	No of Cases	Weighted Degrees of Freedom	Sum sq. Dev.	Group Mean Sq. (A)	Overall Mean Sq. (B)	F Stat (A/B)	F(0.05)	F>F(0.05) (sig. deviation)
Small shops	35	31	38	1.2	2.12	-	-	-
Large shops	22	20	64	3.2	2.12	1.5	2.3	-
Small org.	52	46	90	1.9	2.12	-	-	-
Large org.	5	4	13	2.8	2.12	1.3	2.4	-
Small org. & shop	36	32	44	1.3	2.12	-	-	-
Large org. & shop	4	4	12	3.3	2.12	1.6	2.6	-
Small centre	36	32	70	2.2	2.12	1.0	1.7	-
Med. centre	13	12	14	1.2	2.12	-	-	-
Large centre	8	7	20	2.8	2.12	1.3	2.2	-
Leicester	18	16	22	1.3	2.12	-	-	-
Coventry	13	12	23	2.0	2.12	-	-	-
Walsall	11	10	14	1.4	2.12	-	-	-
Bromsgrove & Kidderminster	8	7	38	5.3	2.12	2.5	2.9	-
Leamington	7	6	6	0.9	2.12	-	-	-
High Quality	19	17	50	2.9	2.12	1.4	1.8	-
With Grocery	9	8	4	0.5	2.12	-	-	-
With Flowers	33	29	41	1.4	2.12	-	-	-
Highly specialised	19	17	62	3.6	2.12	1.7	1.9	-
Medium Specialised	34	30	39	1.3	2.12	-	1.53	-
Mixed	4	4	3	0.8	2.12	-	-	-
Firm A	4	4	12	3.3	2.12	1.6	2.56	-

F statistic has no meaning when group mean square is exceeded by overall value. In such cases the formula fits the subgroup better than the sample as a whole.

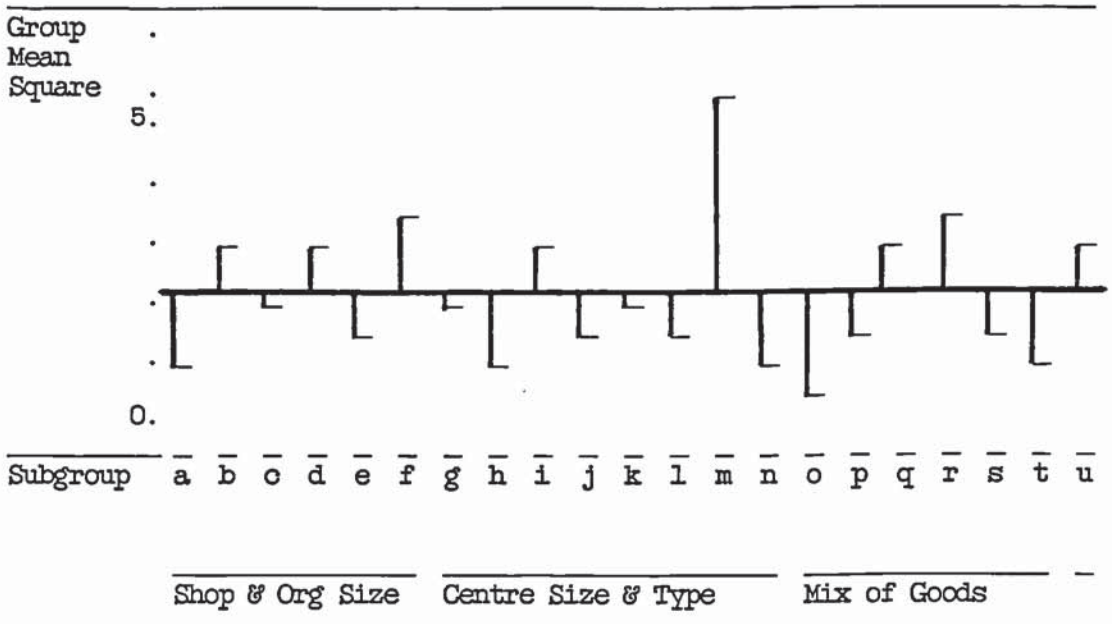
Precise subgroup definitions are given in section 6.3.1

Weighted degrees of freedom are calculated thus:

$$DF = \text{Cases in Subgroup} \times 51/57$$

Where: Sample degrees of freedom = 51 (number of cases in sample - number of variables in the equation - 1)

FIG. 6.4 The Principal Model Relating to Greengrocers: Comparison of Mean Square Deviations from Expected Values for the Mean Number of Customers in a Shop for Various Subgroups.



Key:

⌜ Worse fit than complete sample but where the discrepancy is sufficiently small to be attributed to chance.

⌞ Better fit than complete sample

a) Small shops
b) Large shops
c) Small organisations
d) Large organisations
e) Small org. & Shop
f) Large org. & Shop
g) Small centres
h) Medium centres
i) Large centres
j) Leicester
k) Coventry
l) Walsall
m) Bromsgrove & Kidderminster
n) Leamington
o) High Quality
p) With grocery
q) With flowers
r) Highly specialised
s) Medium specialised
t) Mixed
u) Firm A

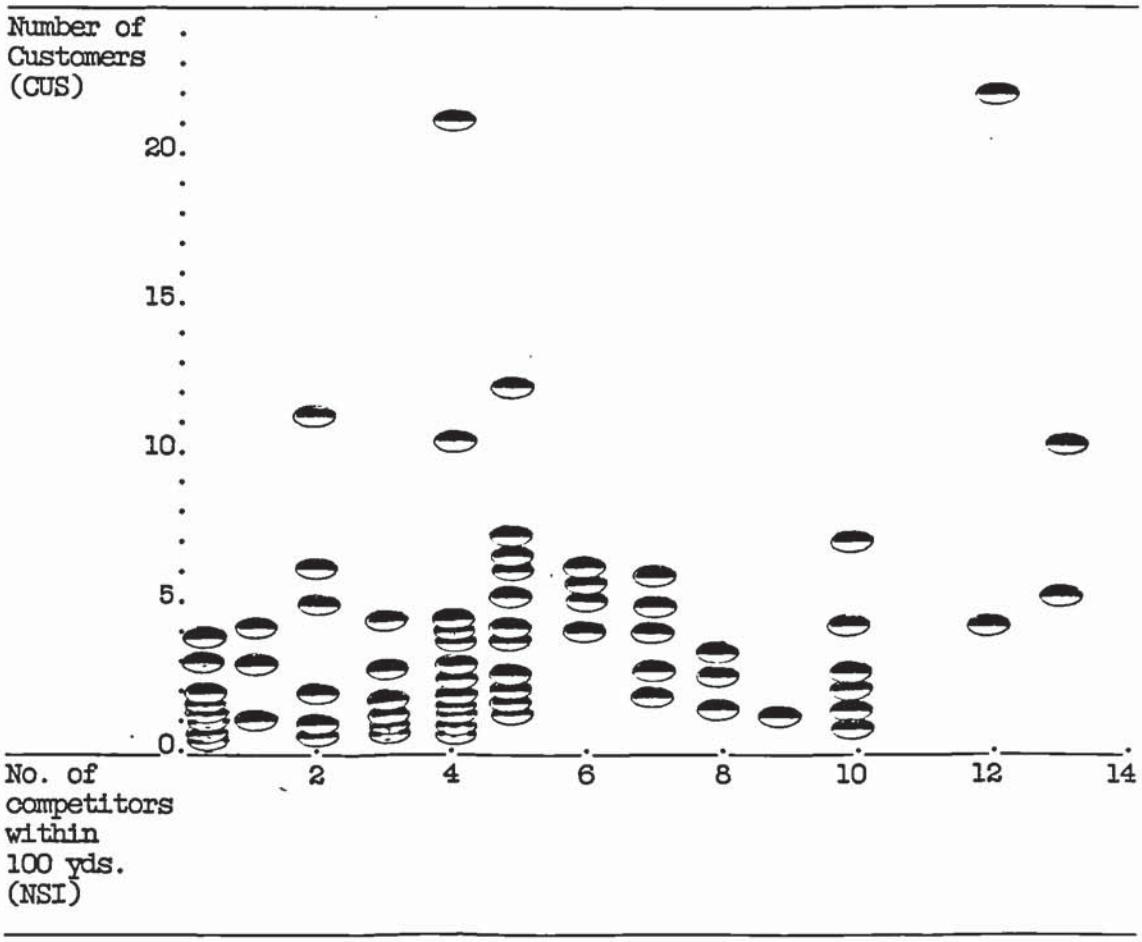
6.3.2 Gent's Fashion Outfitters Shops

1) Derivation of MRA models -

The complete set of independent variables (see chapter 5) was entered into a stepwise regression with CUS as the dependent variable. The resultant equation and some supporting statistics are given in Fig 6.11 as Equation I. The equation accounts for 75% of the variation in CUS and includes four independent variables. These are advertising expenditure (ADV, Beta 0.43) shelf space devoted to selected lines (SHEL,0.34), the size of the shop (UNITS,0.23) and competition within 100yds. (NSI,0.13), (see chapter 5 for precise definitions). Although it is proposed to make a detailed examination of this equation later in the chapter, it should be noted that it suffers from a fairly serious flaw, namely that the only term relating to location (NSI) is fairly minor in its influence (as indicated by the beta value). If this were the case, these shops would be able to operate fairly successfully in a variety of different locations. It might be expected that many would take advantage of low rents in off-centre positions to reduce costs and increase profitability. This is clearly not the case; it has already been noted that this trade tends to locate mainly in city centres. Relatively few shops in the sample are located in the smaller town and district centres. The model which has been derived is unable to account for this phenomenon.

Earlier it was noted that many location variables exhibit some evidence of non-linearity in their relationship with performance. Figs. 6.5 to 6.8 reproduce a number of scattergrams

FIG. 6.5 Gent's Outfitters Shops: The Relationship Between Mean Customers in a Shop and Competitors within 100yds.



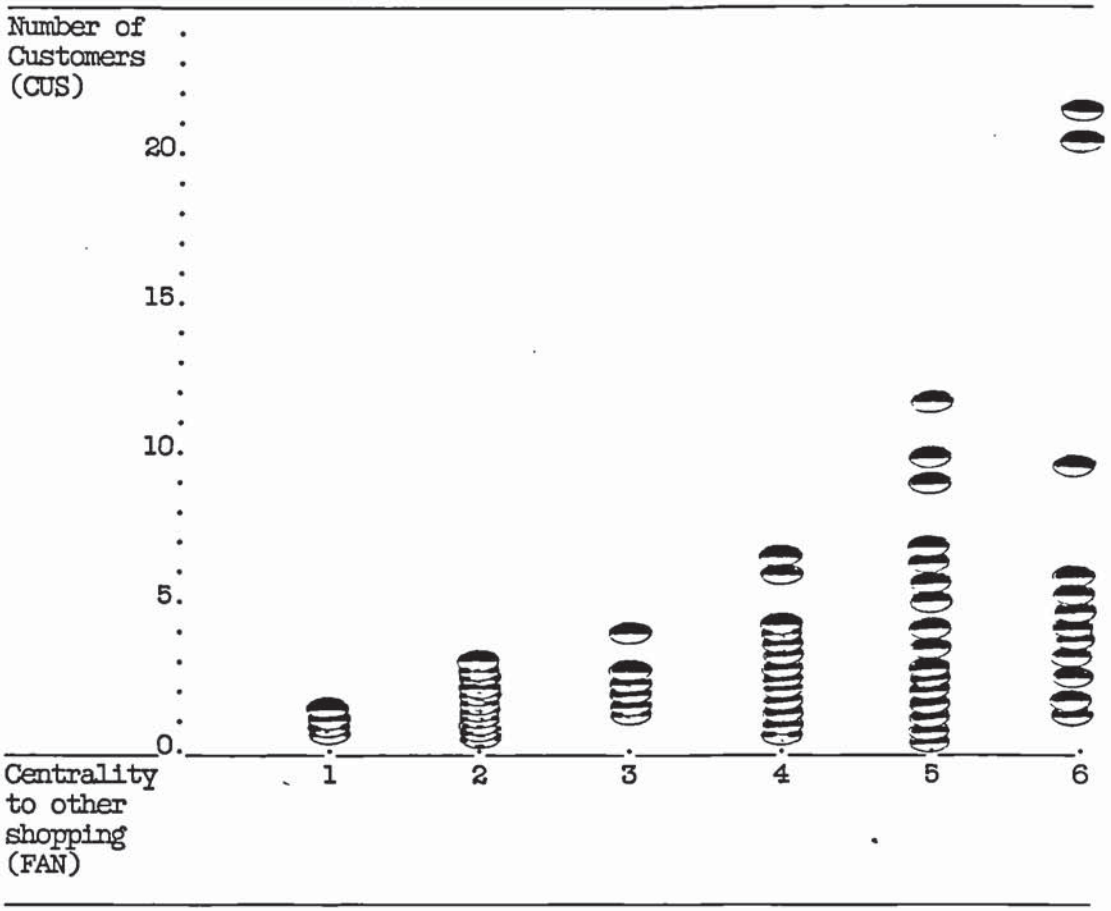
Where:

CUS - The mean of the number of customers in the shop on 10 specific occasions.

NSI - The number of shops within 100yds. which stock items of gent's wear for which prices and range were measured in the survey, regardless of the general goods mix in the shop.

For precise definitions see Chapter 5.

FIG. 6.6 Gent's Outfitters: The Relationship Between Mean Customers in a Shop and Centrality to Other Shopping.



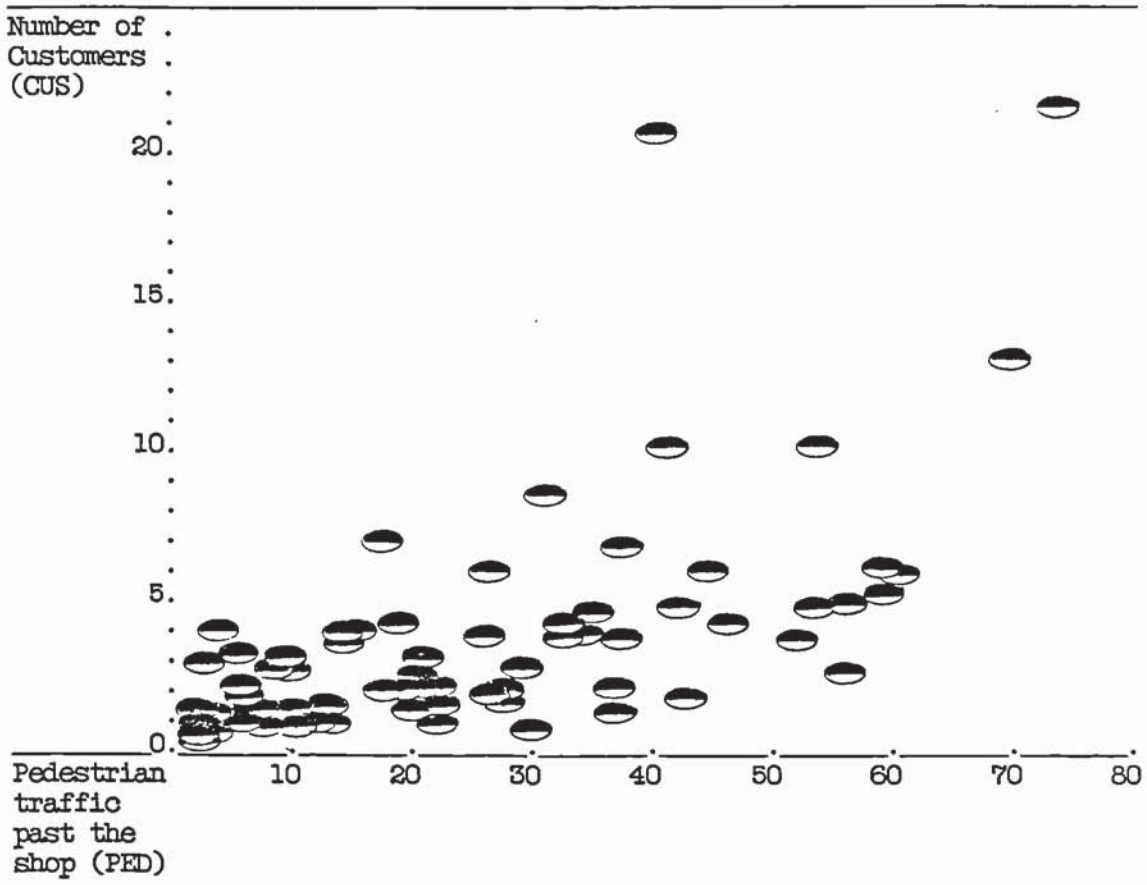
Where:

CUS = The mean of the number of customers in the shop on 10 specific occasions.

FAN = The extent to which a hexagonal area of 100yds radius centred on a shop is surrounded by similar areas in which in excess of 50% of usable frontage is devoted to retail use.

For precise definitions see Chapter 5

FIG. 6.7 Gent's Outfitters: The Relationship Between Mean Customers in a Shop and Pedestrian Traffic.



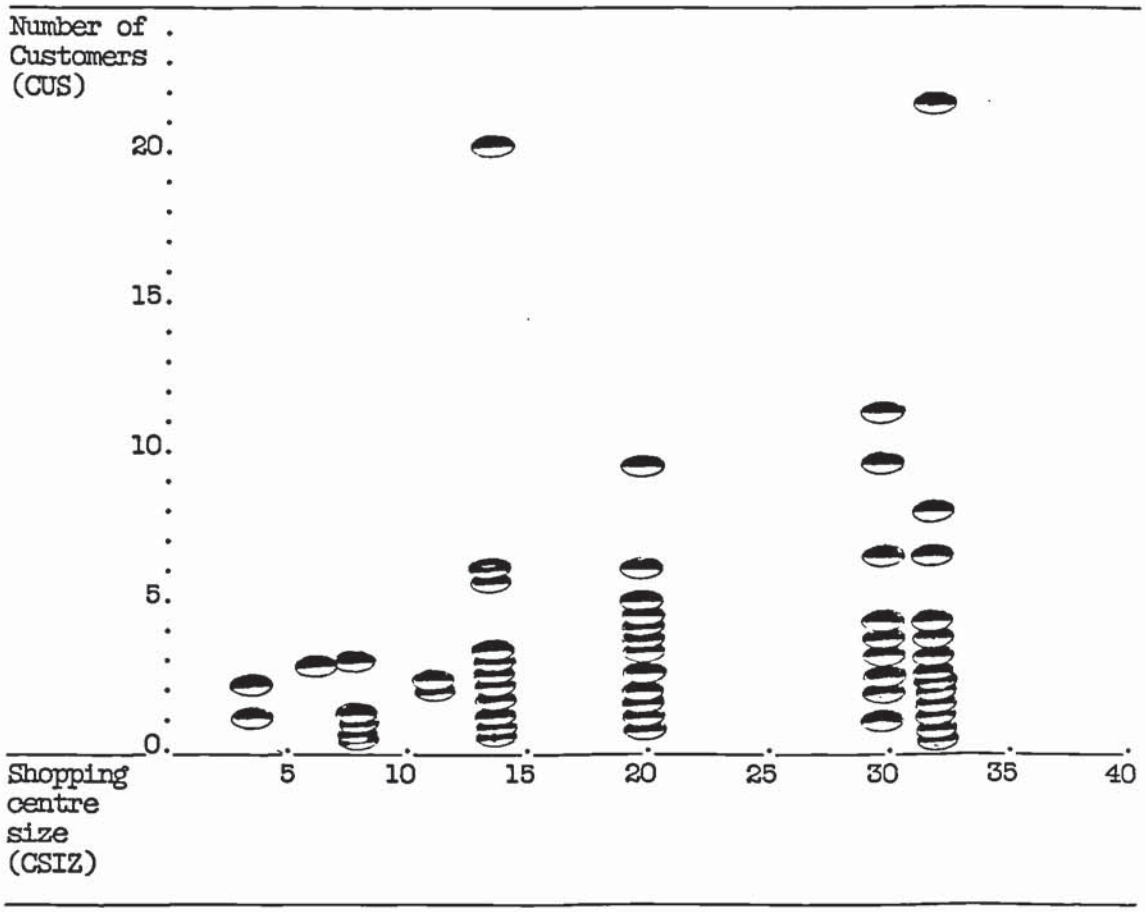
Where:

CUS = The mean of the number of customers in the shop on 10 specific occasions.

PED = The mean of the number of pedestrians passing within 20ft. of the shop during one minute, measured on 4 specific occasions.

For precise definitions see Chapter 5

FIG. 6.8 Gent's Outfitters: The Relationship Between Mean Customers in a Shop and Shopping Centre Size.



Where:

CUS = The mean of the number of customers in the shop on 10 specific occasions.

CSIZ= The number of hexagonal adjacent areas of radius 100yds. with more than 50% usable frontage devoted to retail use which make up the shopping centre in which a shop is located.

See Chapter 5 for precise definitions.

demonstrating the relationship between CUS and a number of aspects of location. These location variables were predominant (though not significant) in terms of their partial correlation coefficients when shelf space, advertising and floorspace had been entered into the equation. With one exception (NSI), there is a clear tendency for the plots to be grouped in the right hand lower portion of the figure. Earlier in this chapter it is argued that this effect indicates that a high score on the variable concerned is a necessary but not sufficient condition for a high score on CUS. The nature of multiple regression analysis makes it difficult to derive models to account for phenomena of this type since only direct linear additive features of relationships are described. This limitation can be overcome by translating the conditional effect into a linear one. The approach used involved multiplication of location and non-location variables In mathematical terms this technique can be represented as follows:

$$A = (B1 \times X1 + B2 \times X2 + ...Bn \times Xn)Z$$

where:

Z is a conditional variable which amplifies the effect of X1 to Xn X1 to Xn are independent variables.

B1 to Bn are coefficients

Multiplying the terms witin brackets gives an equation of the type typically associated with MRA:

$$A = B1 \times X1 \times Z + B2 \times X2 \times Z ....Bn \times Xn \times Z (+ C)$$

In an earlier section of this chapter some reservations were expressed about this type of transformation on the grounds that a) the analysis would be overcomplicated by such practices (which are, in any case, quite arbitrary) and b) there might be problems of providing a theoretical rationale. In the present case the decision to take this step may be defended on the grounds of the inadequacy of alternative formulations. In addition, in the case of location variables, the provision of an adequate rationale is not a problem (see section ii).

A number of compound variables of the type [Xn x Z] were created by multiplying each non-location variable by each of the above location variables in turn. Each set of variables was entered into MRA. Additionally, in the case of centrality-to- other-shopping (FAN), a mix of both compounded and raw variables was analysed. The resulting equations are reproduced along with the plain equation in Fig.6.11. These are subject to evaluation according to the criteria outlined earlier.

2) Evaluation of MRA derived models -

i) Degree of Explanation -

All the equations demonstrate a fairly high capacity to explain variance in CUS, even the least powerful explains nearly 70%. Equations I, II, III and VII are particularly satisfactory having R squared values of 75% or more. Equation III, a five variable equation based on centrality-to-other-shopping (FAN), explains 82% and is the most satisfactory. Equation VI, based on shopping centre size (CSIZ) is least satisfactory according to this criterion.

TABLE 6.11 Gent's Outfitters: Formulae Derived by Multiple Regression Analysis of the Main Database.

Equation	Var. 1	Var. 2	Var. 3	Var. 4	Var. 5	Cmpd. Var.	Const.
I Plain	+.017SHEL [0.34]	+.0083ADV [0.43]	+.0013UNITS [0.23]	+0.15NSI [0.13]			- .64
II FAN (3v)	(.003SHEL [0.35]	+.0016ADV [0.45]	+.0002UNITS) [0.22]			FAN	+ .67
III FAN (5v)	(.003SHEL [0.36]	+.0017ADV [0.49]	+.0003UNITS [0.34]	-.078LIN [-.30]	+.038NSI) [0.18]	FAN	+2.13
IV PED	(.0004SHEL [0.49]	+.00014ADV) [0.34]				PED	+1.90
V NSI	(.0015ADV [0.54]	+.0003UNITS [0.36]	-.086LIN [-.67]	+.44CHOY [0.49]	+.29MIND) [0.24]	NSI	+2.5
VI CSIZ	(.0005ADV [0.62]	+.00007UNITS) [0.35]				CSIZ	+1.16
VII FAN/Pl.	(.0032SHEL [0.38]	+.0016ADV) [0.49]	+.0011UNITS [0.19]			FAN	+.42

[Beta weights]

Equations take the form:

CUS = (Variables in brackets) x Compound Variable + Variables outside brackets + Constant Term

CUS = Mean number of customers in a shop.
SHEL = Shelf space devoted to specified items.
ADV = Annual advertising expenditure of operator.
UNITS = Size of shop.
FAN = Centrality to other shopping.
PED = Mean number of pedestrians passing within 20 feet of the shop during 1 minute.
LIN = The number of different lines in gent's fashion wear on sale.
NSI = The number of shops selling gent's fashion wear within 100yds.
CHOY = The mean of weighted number of choices available for specified lines.
MIND = Status as multiple or independent (less than 10 shops under operator control)
CSIZ = The physical area of shopping in the centre in which the shop is located.

For precise definitions see Chapter 5

ii) Theoretical Rationale -

All equations are satisfactory in terms of variable rankings with the exception of I which gives too low priority to location, this must be considered to be an important influence on trade for reasons which were outlined earlier. All the equations contain terms for advertising expenditure (ADV), while shelf-space (SHEL) also figures prominently in five out of seven equations. Trading floorspace (UNITS) appears in 4 equations, number of lines and number of competitors (NSI) appear in two while weighted choices (CHOYXX) and ownership type (MIND) appear only in equation V. Individual variable rationales will now be considered in detail.

Location Variables (compound) - A number of empirical justifications have been advanced for the inclusion of measures of location as conditional variables and this appears to be supported by the apparent strength of explanation of these equations, however, no rationale has so far been suggested to explain the mechanism by which location influences performance.

The location variables under consideration relate with varying degrees of immediacy to the geographical environment of a shop. CSIZ is most general and relates to the size of the entire shopping centre, at the next level of immediacy is FAN which relates to the area within 300yds of the shop. NSI relates to competition within 100yds of the shop, while PED relates to an area within 20ft of the shop frontage. In spite of entirely different aspects being measured there is considerable inter-correlation between measures. Such effects are fairly readily explained. In the largest centres

many shops are centrally located relative to other shopping and experience high levels of pedestrian traffic past their entrances. In a very small centre neither high centrality nor pedestrian traffic is even possible. Before dealing with these measures individually, it will be profitable to consider in general terms why "central" location, whether measured in terms of centre size position within centre etc, may benefit this kind of trade.

Early theories of location held that a retail outlet would be located wherever a population could be found to support it. Christaller (1933) developed the notion of a hierarchy of centres based on this precept in which local centres are composed of shops catering for general needs. More specialised requirements are catered for in higher order centres (in cities and towns) which are able to survive by drawing customers from a wider area. In the present study, which focusses on a fairly homogeneous trade, it seems that such an explanation for central location is inadequate since often large numbers of these shops locate in a single centre. This indicates that on the basis of population support they could be considerably more dispersed. A second aspect of Christaller's hierarchy is that higher order centres are held to offer a number of complementary services so that a customer may fulfil a number of divergent requirements on a single visit. Shopping for a garment may be combined with other shopping, a visit to an insurance broker and a museum. Multi-purpose shopping behaviour may therefore account for the effects under consideration.

A further theory which may be considered to have bearing on shop location, in the current context, is that of product class.

This theory is considered in detail in Chapter 3, it is concerned with the differences in consumer buying behaviour for different types of goods. Two main categories are identified, those of convenience and comparison goods. Only the latter is of relevance here. Earlier the author has argued that comparison goods are those for which the the typical customer habitually makes comparisons and that this may be attributed to the relatively low frequency of purchase and the high degree of heterogeneity in the shopping environment for such goods.

It is assumed that gent's fashion-wear articles are comparison goods on account of being relatively infrequently purchased and subject to considerable variability in the marketing mix in different shops (see Chapter 7 for a more detailed treatment of this issue). Given such a categorisation, this theory would suggest that the importance of centrality-to-other-shopping arises from the opportunity which it affords the buyer in making comparisons, of price and suitability, without excessive travelling effort.

From the point of view of individual location variables, a number of conclusions may be drawn. Firstly that pedestrian traffic, which is expected to be associated with convenience rather than comparison goods (see section 6.3.1), probably owes its apparent power of explanation to its intercorrelation with other location variables, its relative weakness would appear to support this conclusion. The comparison explanation would appear to support NSI particularly and it is surprising to find that this variable is also relatively weak in explanatory terms. One possible explanation

for this arises from the degree of immediacy of NSI (only competitors within 100yds of the shop were considered) and it may be that the measure lacks rigour. To some extent (although it is by no means certain) FAN and CSIZ may act as proxy variables representing centrality-to-competitors A further factor which may explain the influence of CSIZ and FAN is that customers prefer to engage in shopping for more than one type of good on a single trip. Visits to larger centres also facilitate combination of shopping with other activities such as visits to museums and libraries.

Having considered the location variables themselves, it is now necessary to examine their relationship with other variables in the model and consider the theoretical case in favour of central location as a necessary but not sufficient condition for high performance.

Earlier it was found that in the case of a convenience good pedestrian traffic alone accounts for a considerable proportion of the trade of a shop, such an effect being entirely independent of its other shop attributes. This situation arises because customers tend to minimise the time and effort expended in obtaining these goods and patronise almost any outlet within easy reach. For comparison goods the reverse should be the case. Simply being in a good location ought not to guarantee good performance because customers also discriminate between shops on other grounds. Conversely, when a shop is in a bad location (in a small centre or away from other shopping) poor performance is inevitable even though the shop may score high on other variables. This situation arises because such locations inhibit comparisons (owing to

increased travel costs) and are therefore not favoured by the customer who wishes to engage in this type of shopping behaviour. Out-of-the-way locations also discourage those engaged in more than one kind of shopping or a combination of shopping and other activities.

Advertising Expenditure - In general, advertising can perform a number of different functions. These are:

a) To inform the customer of the existence of the firm, its location, its products and its prices.

b) To create an "image" of the firm, in the potential customer's mind, the conception of which, exceeds that which would be created by the first method.

c) To remind the customer of the firm, of his/her experiences of it or of an "image " created at an earlier time.

Where a considerable body of potential customers have already formed a favourable impression of the firm and have a clear idea of its marketing mix, either through previous experience, word of mouth or a previous advertising campaign, it is clear that additional advertising would be superfluous.

In the case of the present study, which is concerned with fashion, it may be that "image" takes on a particular importance. Certainly it appears that the largest advertiser in the menswear market, the Burton Group, has used its advertising to assist in creating a customer conception of their outlets as exciting places

to shop.

In conclusion, although it is theoretically acceptable that advertising expenditure can exert a powerful influence on performance, in this sector, it would be unsafe to assume that it always does so. The effectiveness of expenditure may be contingent upon the type of appeal used, the choice of medium and the individual circumstances of the firm, matters that have not been fully addressed in this survey.

Area of Display Devoted to Specific Lines (SHEL) - There are a number of possible explanations as to the effect of this variable:

a) Shelf-space may be a proxy variable representing breadth of choice.

b) A large display area may facilitate advantageous exposure of the individual choices on sale, either because special stands may be used or because a whole section may be devoted to a single style. Such techniques may recommend the products more effectively to the customer's attention than if the same number of styles were packed into a smaller area.

c) The customer may perceive a large display to represent a wide choice regardless of the actual situation.

The first explanation may be rejected on the grounds that choice was measured during the study and appears to be inferior to display space as an explanatory variable. Nevertheless there is a relatively strong association between mean weighted choice (CHOY)

and shelf-space (SHEL) (Pearsons r = .7). This suggests that consumers may be able to use shelf-space as a rough guide to the amount of choice available and that this is more important in attracting customers than the actual amount of choice available.

It is not possible, in the light of currently available information, to reach any definite conclusions on this issue.

Trading Floorspace of the Shop (UNITS) - In theoretical terms trading floorspace may affect performance in a number of different ways:

a) A large shop makes possible advantageous display and the provision of greater choice.

b) A large shop is less likely to become "saturated" with customers.

c) Large shops are more likely to be noticed (the exterior represents a form of advertisement in itself).

d) A large shop may appeal to the customer as having greater potential to satisfy his/her needs.

e) Finally these shops may represent a greater potential for unimpeded exploration by the customer who can examine goods without being subject to the implied pressure to purchase that may be experienced in smaller shops owing to the constant proximity of sales staff (see Packard 1957).

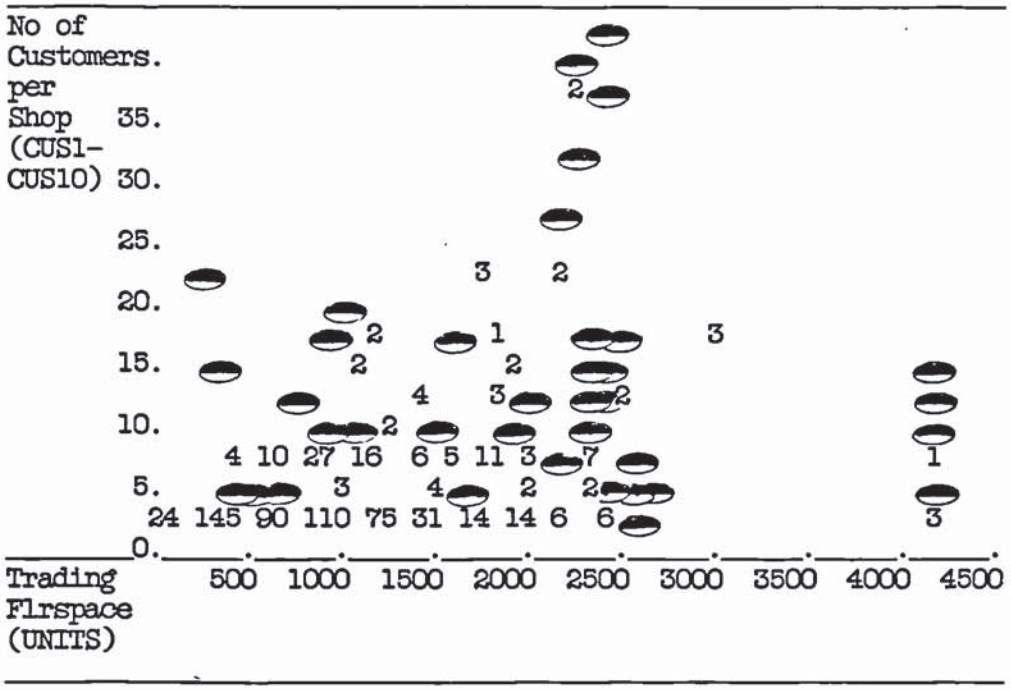
A number of these explanations may be rejected on the basis of the

evidence available. Display area was measured in the survey and does in fact appear as a more important variable than UNITS in two equations, the effect of this variable must therefore be over and above that attributed to display space. The number of choices was also measured in the survey and this explanation can be rejected for the same reason. The possibility that shops become "saturated" with customers may also be rejected. Although it is plausible that additional customers are deterred when the number of customers in a shop of a given size reaches a certain level, examination of the number of customers encountered at different times and in different sizes of shop (see Fig. 6.9) reveals little evidence that this point is ever reached. The plots show little tendency to cluster at an upper limit for a given size of shop as might be expected if this were the case.

Other explanations, which relate to noticeability and customer perceptions of potential for exploration, cannot be properly examined in the the present study.

Number of Lines (LIN) - Increasing the number of lines on sale might be expected to enhance the ability of a shop to satisfy the requirements of a greater number of customers and a larger proportion of the requirements of existing customers. In equations III and IV, where this variable appears, the direction of effect is in fact negative; precisely the opposite to what this rationale would predict. Although it might be argued that many customers favour shops that specialise, as a result of the extra choice provision this makes possible, in general such an effect would

FIG. 6.9 Gent's Outfitters: The Relationship Between the Number of Customers in a Shop at at a Given Time (10 occasions per shop) and Trading Floorspace.



Where:

CUS1 to CUS10 = the number of customers in a shop on each of 10 individual occasions (see Chapter 5)
UNITS = the area of the shop which is actually used for trading purposes i.e. not including stock rooms etc.

Each shop is represented 10 times, the positions of individual is approximate, where more than one point is in the same position these are represented by a number.

favour the inclusion of choices (CHOY) in the equation. It is also possible that unsuccesful retailers attempt to increase trade by engaging in increasingly mixed trading.

On balance it must be considered that this variable is unsatisfactory in terms of this criterion.

Mean Choice (CHOY) - This variable relates to the number of choices for trousers, jeans, shirts and jumpers when the choice offered by each shop is weighted according to the sample mean for that line. The purpose of this weighting procedure is to take account of the fact that more varieties are typically offered in shirts than in jumpers. For a comparison good, it is clear that a greater variety increases the possibility that a customer will find a suitable style and decreases the possibility that a customer will reject a range as being too limited (Mercer 1974).

Type of Shop Ownership (MIND) - This measure represents a categorisation of shops according to whether or not they are part of a chain of ten or more outlets owned by the same operator. It is proposed that customers are attracted to stores that are part of a large chain because they are more easily able to identify its suitability from previous contact. In addition, large organisations may be considered by the customer as having more stable trading patterns and to have "more to lose" from sharp practice etc.

Missing Terms - It is important when considering a rationale to take into account not only those variables which are included but also to provide a justification for the omission of variables

representing theoretically important influences. Although in fact all the variables selected for measurement were included by virtue of their potential to affect sales, it is proposed only to consider the more obviously important influences here.

Attention has already been drawn to the deficiency of equation I in respect of location, it is not proposed to consider this issue further. The major area of omission as far as these equations are concerned is in the areas of price and product range. The theoretical importance of product range flows from both the comparison status of these goods, which might be expected to favour a greater degree of choice, and to the rather obvious reason that a wider range is more likely to meet particular consumer requirements. In order to account for this deficiency among all but one of the equations it is necessary to suggest that consumer buying behaviour for comparison goods is less thorough than might be expected. The possibility exists that the consumer uses shelf space, shop size or projected image as a general substitute for a proper evaluation of choice or subordinates the pursuit of choice to other considerations. The apparent lack of impact of range width (no. of lines) was discussed earlier with reference to the negative effect of this variable in some equations, it was suggested that specialists may be favoured by the customer for the supply of these goods. It might be considered that such an effect might be large enough to cancel out the beneficial effects of increasing the number of lines.

The lack of an effective price variable in any equation is puzzling in view of the importance often attributed to low prices

in retailing in general. In fact price measures show practically zero association with performance at almost all stages of the analysis (correlation coefficient between HIPRI,LOPRI and CUS are 0.01 and -0.02). For comparison goods it was expected that there would be a connection between low price and retail success. The rise of multiples has often been attributed to their ability to pass on economies of scale to the customer by charging lower prices (see Chapter 2). In the present study there is no evidence of lower prices being associated with larger organisations (see Appendix E) and it may be that for these goods the customer may associate low prices with poor quality and style (see Hill 1966).

Finally, the absence of a variable representing the demographic characteristics of the catchment area from which the shop draws its trade may arise from the lack of variability between the main centres where nearly all the shops were situated.

The absence of a given variable from an equation does not imply that its effect is negligible, merely that within the range of empirical values encountered in the study any such effect was not measurable. Empirically determined ranges for each variable which was included in the study are presented in Appendix D.

iii) Compatibility with Other Research

In general two sets of influences stand out as having been the principal concerns of retail practitioners, planners and theorists; these are location and floorspace. The bulk of retailing theory has been concerned with the derivation of location models (see Chapter 3). There is little doubt that this preoccupation arises from the

perception that this is a key factor in determining performance. A study which is in some ways comparable with the present one is that by Davies (1973). This study has been considered at some length in Chapter 3. Davies used MRA to analyse the performance of shops belonging to a durable goods chain, such goods may be considered to be subject to comparisons buying behaviour, according to the criteria set out earlier. Davies findings, that trading floorspace and location were the major determinants of performance differences between shops, would appear to support equations II to VII in the present study if SHEL can be considered to represent a refinement of the floorspace measure. It was also noted that demographic factors had little influence although these were subject to comprehensive measurement. The author comments that floorspace and location have been used by the firm he studied, for many years, in order to calculate performance targets.

Beyond these general points, this study diverges from the present one. The location variable was found to be additive in it's effect while the number of competitors in the vicinity was also found to have a (minor) effect. Differences between the two studies may account for these anomalies; durable goods may not in fact be subject to the same rules as gent's fashion while the focus of the study on the outlets belonging to a single organisation may have reduced the variability encountered for some measures. The study did not consider pricing, product range or advertising.

Although advertising does not appear to have been subject to any systematic study of its relative importance, a number of difficulties are apparent with regard to the variable. Ornstein

TABLE 6.12 Trends in Real Advertising Expenditure for Various Retailing Types and a Number of Individual Gents Outfitters 1970-84.

£000's at 1971 Prices

Year	Chain Grocery	Dept.& Retail	Cecil Gee	Collier	Burton	Foster	Hepworth	Total Firms
1970	5,759	6,845	—	81	58	—	32	171
1971	5,441	9,908	—	137	449	—	256	842
1972	6,872	8,651	2	137	201	4	206	550
1973	6,939	19,790	—	126	254	10	76	463
1974	7,884	20,745	1	1	466	4	99	571
1975	8,832	27,191	1	143	688	130	379	1,341
1976	9,390	31,331	2	121	696	183	305	1,307
1977	12,193	32,784	5	106	597	139	321	1,168
1978	12,578	35,286	—	—	256	181	22	459
1979	10,515	33,883	32	—	150	220	300	702
1980	12,430	35,123	—	—	51	222	197	470
1981	13,811	39,716	9	116	43	84	22	274
1982	15,962	39,415	26	—	57	66	28	177
1983	16,048	44,070	28	—	189	55	189	461
1984	15,822	46,409	20	11	173	35	65	304

Source: Media Expenditure Analysis Ltd. (MEAL) Monthly and Quarterly Reports 1970-1984
Price Correction: Social Trends 1985

FIG. 6.10 Trends in Real Advertising Expenditure for Various Retailing Types and Selected Gent's Outfitters

Source: Media Expenditure Analysis Ltd. (MEAL) Monthly and Quarterly Reports 1970-1984

(1976) noted that different retailers exhibit strongly conflicting attitudes; some, most notably Marks and Spencer, hardly advertise at all, while others spend heavily. In general real advertising expenditure has shown a strong upward trend among non-food retailers since 1970 (see Table 6.12 and Fig. 6.10). This tends to support the findings of the present study. A consideration of expenditure by retailers included in the present study shows a downward trend in real expenditure, while more strikingly the amounts spent tend to fluctuate dramatically from year to year. While this evidence does not support the contention that advertising expenditure has a major impact on sales, it does not constitute a refutation; some firms clearly find that continuing large expenditure is justified. The situation is clearly more complex than is suggested in the model and the evidence presented here would appear to support the conclusions drawn earlier. Although advertising undoubtedly has the power to influence sales in certain situations it would not be safe to conclude that it always does so. Neither would it be sensible to assume that advertising expenditure is always made to good effect. Clearly certain types of appeal may be more effective than others.

Overall, existing research appears to give qualified support to location, shop size and advertising as major determinants of performance in comparison goods retailing.

iv) Constant Term

Earlier it was stated that, in an expression of the type under consideration, a constant term of any size will represent an

anomaly since the model will predict positive or negative performance for a shop even when the key variables influencing performance are set to zero. Such a statement is subject to the qualification that where negative variables appear in conjunction with a positive constant, such as is the case with equations III and V, a large constant may be acceptable on the grounds that it counteracts the effect of the minimum empirical value of such a variable. In the case of equation III and V the effect of the minimum value involved (0.3), is insufficient to reduce the effect of either constant to an acceptable value. Equations I, II, and VII contain constants between 0.5 and 1 (negative in equation I) while in the other equations figures range from 1.16 to 2.5. It is considered that since a constant represents error from a theoretical point of view values larger than unity must be considered to be unacceptable. Consequently equations III, IV, V, and VI are unsatisfactory in respect of constant term

v) Simplicity/Elegance

All but one of the equations contain the complication of a compound term while one equation has the additional complication of a mixture of compound and other terms. Equations with fewest terms and the simplest construction are considered superior according to this criterion.

In this respect equation I is superior to the compound equations and the equations that contain a small number of variables (Equations IV and VI) are superior to others such as III and IV. The least satisfactory equation is VII which contains a

TABLE 6.13 Gent's Outfitters: Determination of Predictive Validity of Regression Equations using a Retest on Independent Data.

Regession Equation	Phase	Degree of Freedom	Sum Sq. Dev.	Mean Sq. Dev	Ratio of Mn. Sq.(F)	F(0.05)	F>F(0.05) (Significant deviation)
I Plain	Main	67		3.94			
	Pilot	27	251	9.20	2.33	1.68	*
II FAN (3v)	Main	68		3.33			
	Pilot	27	27	1.00	-	-	-
III FAN (5v)	Main	66		2.90			
	Pilot	27	262	9.70	3.30	1.68	*
IV PED	Main	69		4.38			
	Pilot	27	11380	418.00	91.20	1.67	*
V NSI	Main	66		4.49			
	Pilot	27	868	32.10	7.10	1.68	*
VI CSIZ	Main	69		4.90			
	Pilot	27	503	18.60	3.70	1.67	*
VII FAN/Pln.	Main	68		3.32			
	Pilot	27	47	1.88	-	-	-

Regression equations are detailed in Table 6.11

Equations were derived from analysis of the main data base and tested on data collected during the pilot study.

Degrees of freedom for the main equation are calculated as follows:

DF = Number of Cases - Number of Variables in Equation - 1

Degrees of freedom for the test data are calculated as follows:

DF = Number of Cases - 1 (computed value for CUS(E)) - 1

Mean square value is the sum of squared deviations divided by DF.

F is the ratio of Main mean square deviation to Test (pilot) mean square deviation. Where the deviation for the main data is larger the equation fits the test data better than the data from which it is derived and the F-test is superfluous.

F(0.05) is from standard tables.

An equation is supported if the F-stat does not exceed the tabulated figure

mixture of compound and ordinary terms.

vi) Predictive Validity

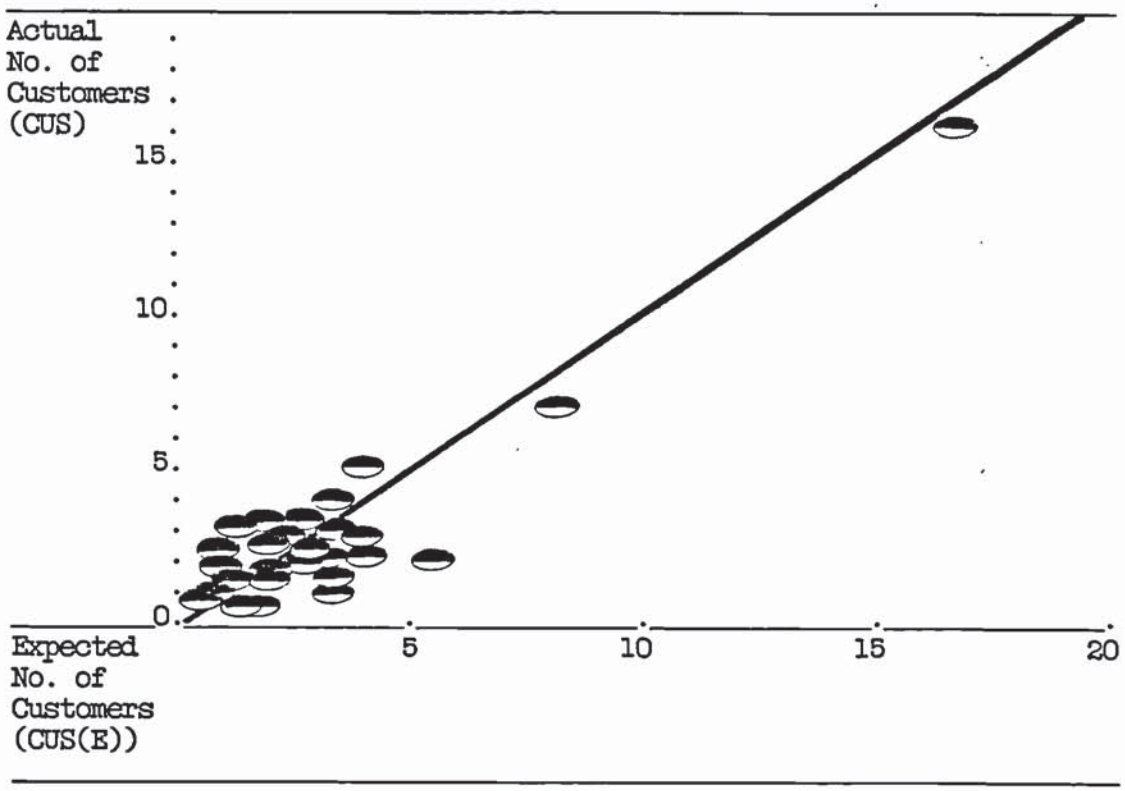
Predictive validity is determined by testing each equation on independent data collected during the pilot phase of the study. Measurement of all variables is precisely comparable to that in the main study with the exception of mean weighted choices (CHOYX) which is based on measurements for trousers and jeans only. Measurement of shelf space (not measured during pilot phase) was made during November 1984, some error may therefore arise due both to marketing policy changes and seasonal variations since the original data collection for this sample in the spring of 1984.

The test takes the form of a comparison of mean square deviations using the F distribution as outlined earlier (section 6.1). The results are presented in Table 6.13. These show that in the case of Equations II and VII the mean square for the source data exceeds that for the test data indicating that the equation "fits" the test data better than the data from which it was derived. Hypotheses based on these equations are strongly supported. A scattergram showing the relationship between predicted and actual values for the test of equation II is presented in Fig 6.11. In all other cases the test mean square exceeds the residual (source) mean square by a larger margin than can be attributed to sampling error and the equations are not supported.

vii) Conclusion

The results of the evaluation process are summarised in Table 6.14. It is clear that only equations II and VII can be considered

FIG. 6.11 The Principal Model Relating to Gent's Outfitters: The Relationship Between the Expected and Actual Number of Customers in a Retest on Independent Data.



Where:

CUS = The mean number of Customers in a Shop (mean value of 10, measurements taken during the pilot phase of data collection)

CUS(E) = (0.003SHEL + 0.0016ADV + 0.0002UNITS)FAN + 0.67
using values for SHEL,ADV,UNITS and FAN measured during the pilot phase of data collection.

The diagonal shows the position on which all points would lie if the actual and expected values coincided.

TABLE 6.14 Summary of the Substantive Analysis for Gent's Outfitters: Evaluation of Regression Equations.

Regession Equation		R sq.	Theoretical Validity				Retest	Fail Score
			Order of Influence	Direction of Effect	Missing Influences	Const.		
I	Plain	0.75	Locatn.?	Satis.	Locatn.?	-0.64	Fail	3
II	FAN (3v)	0.79	Satis.	Satis.	Satis.	+0.67	Satis.	0
III	FAN (5v)	0.82	Satis.	Line -ve	Satis.	+2.13	Fail	2
IV	PED	0.71	Satis.	Satis.	Satis.	+1.90	Fail	2
V	NSI	0.72	Satis.	Line -ve	Satis.	+2.50	Fail	2
VI	CSIZ	0.68	Satis.	Satis.	Satis.	+1.16	Fail	2
VII	FAN/Pl.	0.79	Satis.	Satis.	Satis.	+0.42	Satis.	0

The structure of Equations I to VII is given in Table 6.11

Fail score is the cumulative number of criteria on which an equation is unsatisfactory.

Constants above unity are considered to be unsatisfactory unless coffset by high empirical minima for the independent variables.

adequate on all criteria. All the other models are inadequate in at least two respects and can be rejected. The two surviving models are extremely similar from the point of view of variables included and degree of explanation. Although VII is marginally to be preferred in terms of constant size, equation II is superior in terms of simplicity, and this model is selected. In the remainder of this thesis equation II will be referred to as the "principal model for gent's outfitters".

3) Subgroup Analysis

The relationship between the measured value for CUS (in the main phase of study) and that calculated according to the principal model for gent's outfitters is represented in Fig. 6.12. In order to assess whether deviations from the model can be attributed to any particular subgroup within the sample, the sample is subdivided along a number of theoretically important dimensions outlined earlier. Subgroups are as follows:

Shop Size and Organisation Size

a) Small Shops - Shops with less than 1,000 square feet of trading space.

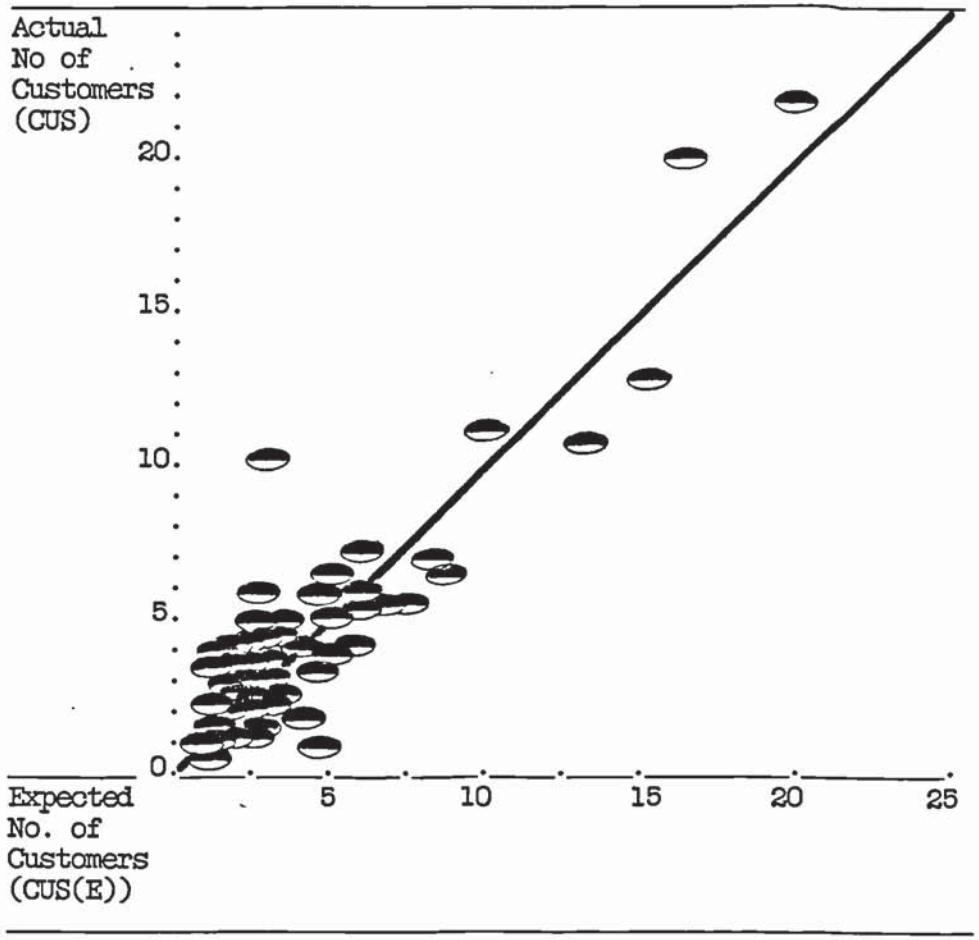
b) Large Shops - Shops with over 1,000 square feet of trading space.

c) Small Organisations - Shops operated by organisations which operate less than 10 branches.

d) Large Organisations - Shops operated by organisations with 10 or more branches.

e) Small Organisations & Shops - Small shops operated by

FIG. 6.12 The Principal Model Relating to Gent's Outfitters: The Deviation of Individual Shops from Expected Values for the Mean Number of Customers in a Shop.



Where:

CUS = The number of customers in the shop (mean value of 10, measurements taken during the main phase of data collection)

CUS(E) = (0.003SHEL + 0.0016ADV + 0.0002UNITS)FAN + 0.67
values for SHEL,ADV,UNITS and FAN measured during the main phase of data collection are substituted in the equation.

The continuous line shows the position on which all points would lie if 100% explanation of CUS were achieved by the formula.

small organisations

f) Large Organisations & Shops - Large shops operated by large organisations

Shopping Centres

g) Small Centres - Shops in centres with a CSIZ value of less than 10 i.e. centres composed of less than 10 adjacent hexagonal areas of 100 yds. radius (see chapter 6).

h) Medium Centres - Centres with a CSIZ value between 10 and 19.

i) Large Centres - Centres with a CSIZ value of 20 or more.

j) Leicester - Shops in the vicinity of Leicester.

k) Coventry - Shops in the vicinity of Coventry.

l) Walsall - Shops in Walsall district.

m) Bromsgrove and Kidderminster - Shops in both towns.

n) Leamington - Shops in the vicinity of Leamington Spa.

Products

o) Upmarket Segment - Shops are selected on the basis that they stock a good proportion of the more expensive styles and brands.

p) With Ladies Wear - Shops that offered a range of ladies clothing.

q) With Boys Wear - Shops that offered a range of boys clothing.

r) With Suits - Shops that offered a range of gent's formal wear.

s) Highly Specialised - Shops offering only gent's fashion

wear.

t) Medium Specialised - Shops offering gent's fashion wear and one additional category.

u) Mixed - Shops offering gent's fashion wear and two or more additional categories

Individual Firms

v) Firm A - Shops owned by Firm A

w) Firm B - " " B

x) Firm C - " " C

y) Firm D - " " D

z) Firm E - " " E

+) Firm F - " " F

*) Firm G - " " G

Mean squares are calculated for each group by dividing the group total by a proportion of the residual degrees of freedom according to the ratio of subgroup to sample size Where the mean deviation for the subgroup is higher than that for the overall sample, this is subjected to an F-test in order to determine whether this deviation could be attributed to random sampling error.The technique is broadly similar to that used in retesting MRA equations to determine predictive validity.

The results of the analysis are presented in Table 6.15 and Fig 6.13. The latter demonstrates in graphic form the extent and significance of subgroup mean deviations from the mean deviation of the sample as a whole. A number of important effects are evident: Small organisations and small shops show less deviation than

TABLE 6.15 The Principal Model Relating to Gent's Outfitters: Analysis of the Distribution of Unexplained Variance Among Various Subgroupings.

Subgroup	No of Cases	Weighted Degrees of Freedom	Sum sq. Dev.	Group Mean Sq. (A)	Overall Mean Sq. (B)	F Stat (A/B)	F(0.05)	F>F(0.05) (sig. deviation)
Small shops	41	39	72	1.84	3.33	-	-	-
Large shops	31	29	155	5.30	3.33	1.59	1.62	-
Small org.	39	37	65	1.7	3.33	0.51	-	-
Large org.	34	32	158	4.9	3.33	1.47	1.62	-
Small org. & shop	31	29	56	1.9	3.33	0.57	-	-
Large org. & shop	23	22	139	6.3	3.33	1.89	1.72	*
Small centre	8	8	6	0.8	3.33	-	-	-
Med. centre	18	17	61	3.6	3.33	1.08	1.79	-
Large centre	46	43	163	3.7	3.33	1.11	1.56	-
Leicester	28	26	92	3.5	3.33	1.05	1.67	-
Coventry	14	13	49	3.8	3.33	1.14	1.84	-
Walsall	13	12	25	2.1	3.33	0.63	-	-
Bromsgrove & Kidderminster	7	7	20	2.8	3.33	0.84	2.14	-
Leamington	10	9	40	4.4	3.33	1.32	2.01	-
Upmarket appeal	12	11	16	1.5	3.33	-	-	-
With ladies wear	12	11	76	6.9	3.33	2.07	1.93	*
With boys wear	13	12	16	1.3	3.33	-	-	-
With suits	33	31	101	3.2	3.33	-	-	-
Highly specialised	5	5	3	0.6	3.33	-	-	-
Medium Specialised	50	47	188	4.0	3.33	1.20	1.53	-
Mixed	16	15	36	2.4	3.33	-	-	-
Firm A	5	5	63	12.6	3.33	3.70	2.35	*
Firm B	6	6	8	1.3	3.33	-	-	-
Firm C	6	6	11	1.8	3.33	-	-	-
Firm D	4	4	9	2.3	3.33	-	-	-
Firm E	3	3	2	0.7	3.33	-	-	-
Firm F	3	3	13	4.3	3.33	1.29	2.74	-
Firm G	2	2	8	4.0	3.33	1.20	3.13	-

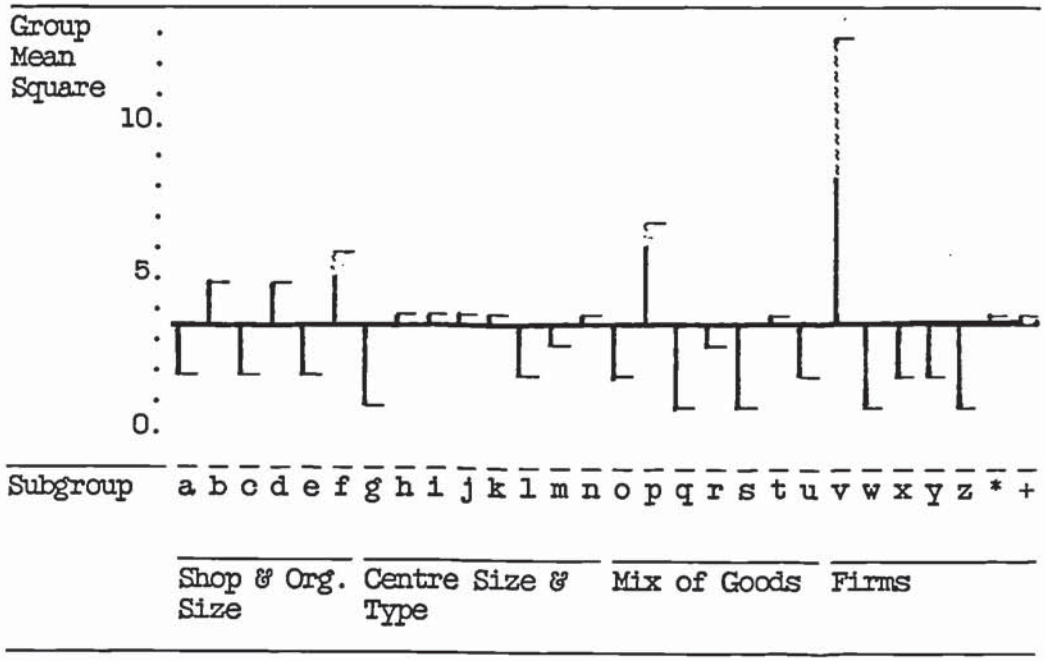
F statistic has no meaning when group mean square is exceeded by overall value i.e. formula fits subgroup better than sample as a whole.

Precise subgroup definitions are given in Section 6.3.2

Weighted degrees of freedom are given:

DF = Cases in subgroup x 68/72

FIG. 6.13 The Principal Model Relating to Gent's Outfitters: Comparison of Mean Square Deviations from Expected Values for Various Subgroups.



Key:

⌐ Discrepancy is significant at 0.05 level (F-Test)

⌐ Worse fit than complete sample but where the descrepancy is sufficiently small to be attributed to chance.

└ Better fit than complete sample

a) Small shops
b) Large shops
c) Small organisations
d) Large organisations
e) Small org. & Shop
f) Large org. & Shop
g) Small centres
h) Medium centres
i) Large centres
j) Leicester
k) Coventry
l) Walsall
m) Bromsgrove & Kidderminster
n) Leamington
o) Upmarket appeal
p) With ladies wear
q) With boys wear
r) With suits
s) Highly specialised
t) Medium specialised
u) Mixed
v) Firm A
w) Firm B
x) Firm C
y) Firm D
z) Firm E
*) Firm F
+) Firm G

average, for large shops and large organisations precisely the reverse is the case. The possibility that this effect arises from there being less scope for absolute deviation in small shops which have fewer customers was examined. It was found that the degree of association between the magnitude of deviations and the value of CUS is quite low (r squared=0.28). That the model should fit the situation of the smaller retailer even more precisely than his larger counterpart is very satisfactory in view of the fact that advertising, which plays a major role in the model, is restricted almost exclusively to national chains of shops. Only three of the subgroups deviate to a significant extent. These are: large shops operated by large firms, shops selling ladies wear, and shops belonging to Firm A. Individual results for these cases are presented in Table 6.16. Examination of this table reveals that:

a) The excessive deviation for subgroup p (with ladies wear) is mainly due to a single shop

b) The high mean deviation for subgroup f (large shops and orgs.) is largely due to a small number of cases which also appear in the other groups.

c) Subgroup v (Firm A) does appear to be characterised by high deviations.

In the case of ladies wear it would clearly be unsafe to assume that such shops do not conform to the model on the basis of the effect a single case. Similarly, for large shops and large organisations it would be unwise to generalise from the effects of

TABLE 6.16 The Principal Model Relating to Gent's Outfitters: Deviation from Expected Values in Individual Cases for Significantly Deviant Subgroups.

Large Orgs and Shops				With Ladies Wear				Firm A			
CUS	CUS(E)	Dev.	Sq.Dev.	CUS	CUS(E)	Dev.	Sq.Dev.	CUS	CUS(E)	Dev.	Sq.Dev.
3	2	1	1	4	2	2	5	22	19	3	10*
1	2	-1	0	1	2	-1	0	13	14	-1	2*
3	10	-7	43*	10	3	7	43*	6	9	-3	7*
4	3	1	1	5	5	0	0	20	15	5	30
5	5	0	0	5	2	3	5	10	13	-3	11
4	5	-1	1	4	6	-2	3				
22	19	3	10*	6	4	2	8*				
1	3	-2	3	1	1	0	1				
2	3	-1	1	4	1	3	5				
11	9	3	2	4	3	1	1				
5	8	-2	7	4	2	2	4				
13	14	-1	2*	7	8	-1	2				
6	4	2	8*								
6	5	1	0								
7	8	-1	2								
10	13	-3	11*								
6	5	1	0								
5	7	-2	4								
1	4	-3	7*								
7	5	2	3								
3	4	-1	2								
4	3	1	1								

Cases appearing in more than one subgroup are marked with an asterisk

CUS(E) = (0.003SHEL + 0.0016ADV + 0.0002UNITS)FAN + 0.67

CUS = Mean number of customers in the shop (measured on 10 specific occasions)
SHEL = Display space devoted to key items
ADV = Annual advertising expenditure of retail operator.
UNITS = Trading floorspace
FAN = Centrality to other shopping.

Precise definitions of variables are given in Chapter 5

Large organisations and shops are shops of over 1,000 sq.ft.(trading area) operated by organisations with 10 or more branches under their control.

a few examples which are in any case included in another smaller group. For these reasons, it is not considered fruitful to speculate further on these groups. In the case of Firm A the situation is somewhat different, although the group consists of only five shops the results are so striking as to merit further consideration. Although this organisation was one of the most successful of those studied, in the present case the deviation from expected values is due both to under and overperformance. It is possible that this firm is affected to a greater degree than average by a particular set of circumstances. Notable characteristics of the chain are that, it is more successful than average according to the measure of performance used here, that it is a long established firm that has recently being subject to considerable repositioning in the market, that it was the largest advertiser of any menswear chain in the year of the study and has been a major advertiser for many years. It seems possible that this group projects a more definite "image" than many menswear retailers, indeed it is often claimed that the success of this firm has been achieved by careful targetting of its marketing effort. It is possible that such factors as this may make this firm particularly sensitive to population characteristics such as income. There is considerable association between the deviations for this subgroup (CUS-CUS(E)) and the extent of home-ownership in the catchment area. It would, however, be unsafe to generalise about this organisation from the evidence only five of its shops.

In general the sample appears to be fairly homogeneous in respect of it conformity to the behaviour described by the model.

6.6 Conclusions

The analytical process has facilitated the identification of models which describe the link between marketing mix variables and performance for each of the two kinds of business which were investigated. These have been shown to be powerful in terms of explanation, theoretically plausible, consistent with existing comparable research and capable of predicting performance when tested on an independent data set. The models selected are superior to other models which also satisfy the foregoing conditions. Each model accounts for nearly 80% of the variation in performance between shops.

A number of procedural and other deficiencies have become apparent during the course of the analysis. These should be regarded as qualifications to the models:

For greengrocers:

i) Theoretical considerations have suggested that product quality may be an important, though subsidiary, influence on performance. This was not measured in the study.

For gent's outfitters

ii) The validity of the indicator of performance was not satisfactory. There is evidence to suggest however that this arises from inadequate measurement of takings (used in the

validation process) rather than any conceptual weakness

iii) A subgroup representing five shops belonging to the most successful firm studied showed significant deviation from the behaviour described by the model.

iv) Theoretical and empirical considerations indicate that the effect of advertising expenditure may not be as direct as the model suggests.

In other respects the models are highly satisfactory.
The following Chapter considers the quantitative and theoretical implications of the two models for the two kinds of business studied.

CHAPTER 7 IMPLICATIONS OF THE RESEARCH FINDINGS

Summary

7.0 The chapter discusses the quantitative implications of the two models, their precision, their application by retail operators and the scope they present for the reinterpretation of past events and the prediction of future developments in greengrocery and gent's fashion retailing.

7.1 For greengrocers, the substitution of all possible combinations of maxima and minima gives a progression of values from the estimated mimimum value of 0 customers in a shop to the maximum of 15. Pedestrian traffic is the principal influence.
For gent's outfitters, a similar substitution gives a progression from 1 to 21 customers in a shop. This value rises more steeply as the substituted values become larger. Centrality-to-other-shopping is the principal influence on performance.

7.2 Precision of the models varies by 50% either side of the empirical mean performance at .05 probability level in the case of gent's outfitters. For greengrocers the corresponding figure is 100%.

7.3 Retail operators may use the models to determine their priorities. The level of precision achieved is not sufficient to permit cost-benefit analysis.

7.4 For greengrocers the model supports the view that greengrocers have resisted multiple penetration by virtue of the frequency with which these goods are purchased. The main threat to small retailers comes from the introduction of preservation techniques such as chilling and irradiation. For gent's outfitters the strength of multiples appears to derive from the ability to acquire centrally located sites and to spread the cost of advertising over a number of outlets rather than any price advantage. The future would appear bleak for the small gent's fashion retailer since his ability to exploit the main factors affecting trade is poor. It seems likely that potential gains from the operation of larger units have not yet been exploited.

7.0 Introduction

This chapter deals with the practical implications of the substantive results of the analysis. Previously a "best" model for each of the two KOBS studied has been constructed. It is proposed to examine the method of application and the substantive import of these mathematical equations from a number of different perspectives. These are as follows:

1) The quantitative impact on the performance of a shop when the variables in the equations concerned take a number of different values. This exercise demonstrates the size of the increase, or decrease, in performance when a causal variable is increased by a given amount. The relative importance of variables in the equation is also given a practical demonstration. The measure of performance used is the indicator of sales, CUS (mean number of customers in a shop).

2) The precision of the estimates given by the models. Given the probabilistic nature of multiple regression equations (arising from the presence of unexplained variance in the data which it purports to describe), a value for CUS which is calculated using the model is not a deterministic prediction of performance. Such a value represents the mid-point of a range, or confidence interval, the size of which may be calculated. Section 2 deals with the precision of the derived formulae, both for the indicator of sales (CUS) and when sales themselves are quantified in absolute terms (using data on mean takings per minute (TAK) which was collected during

the study). Clearly such matters become important where a retailer or other interested party wishes to use the models in a cost-benefit analysis of proposed changes in the variables concerned.

3) At the outset it was stated that an objective of the study is to produce a tool which can be used by small retailers in making decisions about their marketing mix. Section 3 suggests how retailers may use the model to answer questions such as; "What will be the impact on performance if I move my shop to premises in a busier location?".

4) Section 4 deals with general and theoretical implications of the models for the two KOBs studied (implications for retailing in general are considered in the following chapter). Recent developments in these types of retailing are examined in the light of the results. Subsequently an attempt is made to identify likely future developments, particularly those having an impact on the smaller retailer.

Within each section the two KOBs are treated entirely separately.

7.1 The Quantitative Impact of the Marketing Mix on Shop Performance

This section demonstrates the potential effect on performance of altering a given variable within the models under a variety of conditions pertaining to the remaining variables. This is achieved by computing values for mean customers in a shop (CUS) in

conditions representing all possible combinations of empirically encountered minima and maxima for each independent variable in the respective equation. A figure of the following form is obtained:

	CUS1	CUS2	CUS3	CUS4	CUS5	CUS6	CUS7	CUS8
VAR1	Min	Min	Min	Min	Max	Max	Max	Max
VAR2	Min	Min	Max	Max	Min	Min	Max	Max
VAR3	Min	Max	Min	Max	Min	Max	Min	Max

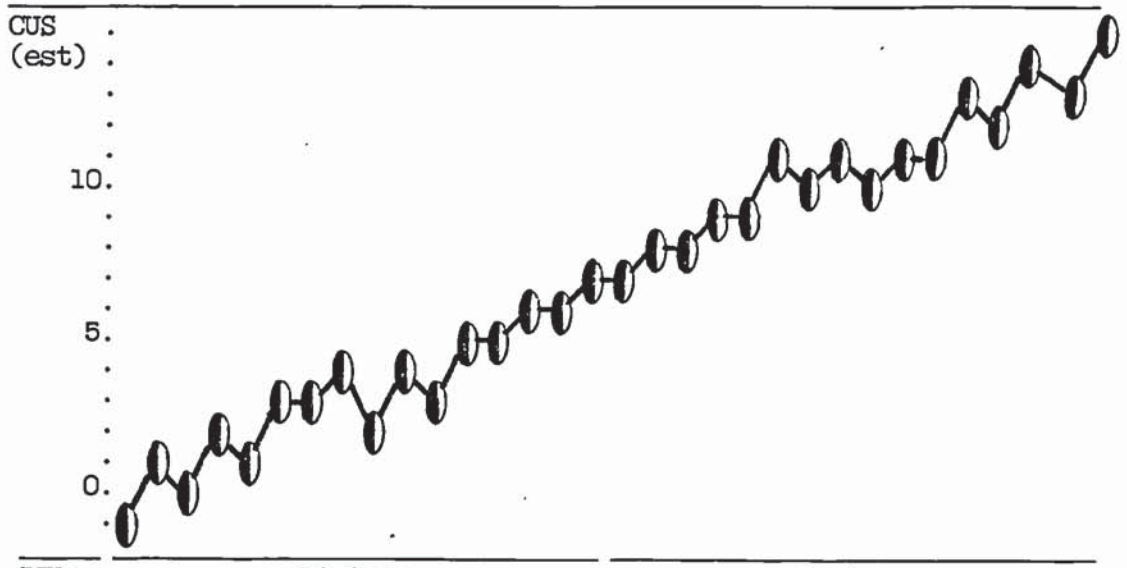
This analysis enables the absolute maxima and minima for CUS to be calculated and facilitates a demonstration of the relative power of the variables involved. For example, if VAR1 is the most powerful and VAR3 is least so (the relative strength of variables is given by the relative size of the beta weights), the values of CUS will progress more smoothly upwards from left to right than if any other order were adopted. Ultimately the smoothness of progression is dependent upon whether the strength of a given variable exceeds the combined strength of weaker variables. The results of the quantification are presented graphically to assist comprehension.

7.1.1 Greengrocers

The effect on performance (CUS) of substituting all the possible combinations of minimum and maximum values for PED, SHEL, MIND, IATT and OCAR in the equation is presented in Figure 7.1. A number of effects may be observed:

a) A minimum value for CUS of -1 is suggested, this compares

FIG.7.1 The Principal Model Relating to Greengrocers: Demonstration of Quantitative Effects Using Empirically Determined Maximum and Minimum Values for the Independent Variables



PED	Minimum								Maximum							
SHEL	Min				Max				Min				Max			
MIND	Min		Max		Min		Max		Min		Max		Min		Max	
IATT	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
OCAR	Mn	Mx	Mn	Mx	Mn	Mx	Mn	Mx	Mn	Mx	Mn	Mx	Mn	Mx	Mn	Mx
CUS (est)	-1	1	0	2	1	3	3	4	2	4	3	5	5	6	6	7	7	8	8	9	9	10	10	11	11	13	12	14	13	15

Where:

CUS(est) = 0.14PED + 0.045SHEL + 2.36MIND + 0.63IATT + 0.048OCAR - 4.3

Maximum and Minimum values encountered in the main phase of the study were as follows:

	CUS	PED	SHEL	MIND	IATT	OCAR
Minimum	0	1	11	0	1	44
Maximum	12	55	80	1	3	76

All values shown have been rounded to the nearest integer.

with an empirical minimum of 0 for this variable. A maximum of 15 is suggested, the maximum value actually encountered was 12.

b) The order of arrangement of variables in the "min-max" matrix is determined from the relative size of the beta weights. Pedestrian traffic is the most influential variable moving from minimum to maximum results in an increase of about 8 in the mean number of customers. This compares to an increase of about 3 for shelf space, the second most important variable.

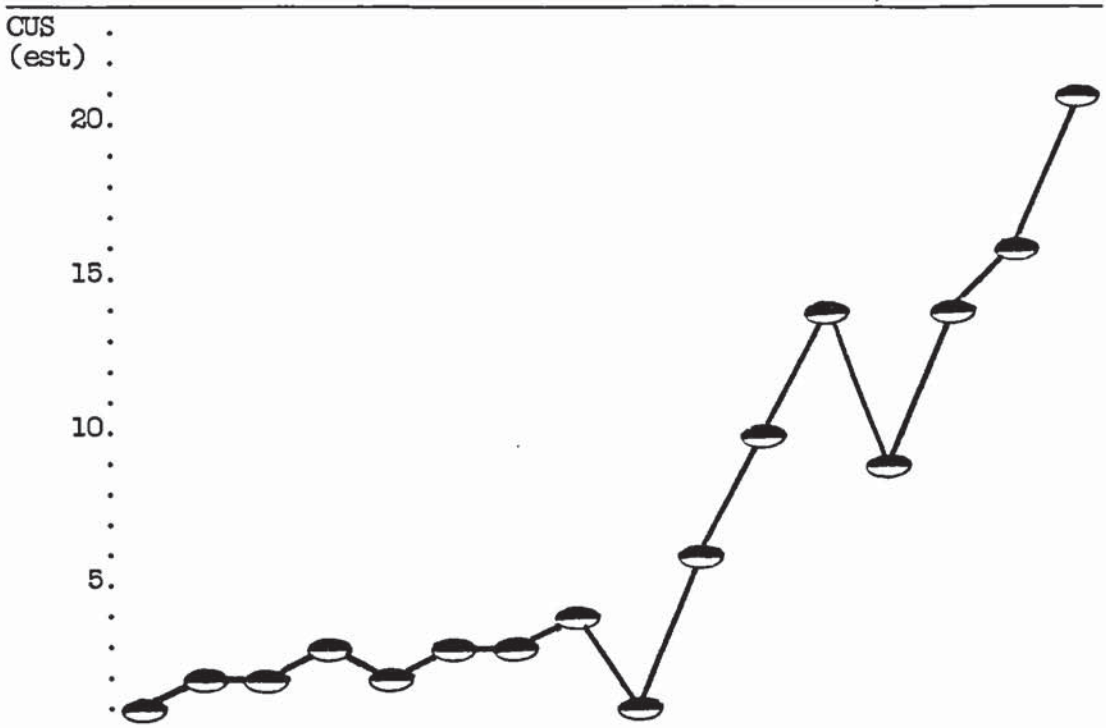
c) Notable interruptions in the smooth progression of the curve are the dips which occur at the outlying quartile positions. These reflect the relative strength of the variables and indicate that the combined effect of MIND, IATT and OCAR together exceeds that attributed to SHEL. Similar considerations apply to corrugations at the extremes of the curve.

7.1.2 Gent's Outfitters

The effect on CUS of substituting all the possible combinations of minimum and maximum values for FAN, ADV, SHEL and UNITS in the equation is presented in Figure 7.2. A number of effects may be observed:

a) A minimum value for CUS of 0.76 is suggested, this compares with an empirical miminimum of 0.2 for this variable. A maximum of 20.8 is suggested, the maximum value

FIG. 7.2 The Principle Model Relating to Gents' Outfitters Shops: Demonstration of Quantitative Effects Using Empirically Determined Maximum and Minimum Values for the Independent Variables.



FAN	Minimum								Maximum							
ADV	Min				Max				Min				Max			
SHEL	Min		Max		Min		Max		Min		Max		Min		Max	
UNITS	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
CUS (est)	1	2	2	3	2	3	3	4	1	6	10	14	9	14	16	21

Where:

CUS(est) = (0.0016ADV + 0.003SHEL + 0.0002UNITS)FAN + 0.67

Maximum and Minimum values encountered in the main phase of the study were as follows:

	CUS	ADV	SHEL	FAN	UNITS
Minimum	0	0	18	1	180
Maximum	22	768	425	6	4300

All values shown have been rounded to the nearest integer.

actually encountered was 21.8.

b) It is not possible to determine the relative influence of centrality to other shopping (FAN) by conventional means owing to the fact that its compound status makes it impossible to compute a beta weight for this variable. A number of possible sequences were experimented with; that shown represents the smoothest progression of values upwards from left to right. Examination of the values presented shows that increasing FAN from 1 to 6 with the other variables constant gives a potential maximum gain of 16.7 (4.3 to 21) compared to only 7 (14 to 21) for ADV and SHEL

c) Notable interruptions in the smooth progression of the curve are the quartile dips. The first of these (which can only just be detected) arises as a result of the combined effect of display space (SHEL) and floorspace (UNITS) being greater that of advertising (ADV); the third dip arises from similar causes. The role played by FAN in the equation is such that its effect is dependent upon the other variables, consequently this variable has only a small effect on CUS when ADV, SHEL and UNITS are set to a minimum. This accounts for the central dip in the graph.

d) Perhaps the most important feature is the dual gradient to be observed in the figure. While the first half (FAN=Min) rises from 0.76 to 4.25, the second half (FAN=Max) rises by a much greater amount from 1.21 to 21. This duality arises from the compound effect attributed to the location measure; when

FAN is minimal even maximum values of ADV, SHEL and UNITS fail to result in large numbers of customers. When FAN is set to a maximum performance depends entirely on the other variables if they are minimal, performance is poor, if they are increased performance rises dramatically

7.2 The Precision of the Models

Tables 7.1 and 7.2 illustrate the method of calculating confidence intervals. These are ranges within which the value for mean number of customers is expected to lie with a given probability. The level of probability used is 95% (0.05). The range is calculated in the case of a fictitious shop which takes mean values for all variables. Conversion from mean customers to takings is achieved using empirically determined formulae. Confidence intervals also apply to these calculations; they are calculated in a similar manner to those for mean customers. This calculation is applied to the same fictitious example cited above.

7.2.1 Greengrocers

An example of the calculation of the 95% confidence interval for mean custmers in greengrocers shops is presented in Table 7.1. A shop taking mean values for pedestrian traffic, shelf space etc. is expected to have between 0 and 8 customers in it at any one time. Conversion to takings is carried out using the following empirically derived formula:

TABLE 7.1 The Principal Model Relating to Greengrocers: The Calculation of 95% Confidence Limits of the Expected Value for the Mean Number of Customers in a Shop, Using Empirically Determined Mean Values for the Independent Variables.

Variable	Mean Value (V)	Reg. Coef. (B)	Std. Error B (S)	T (.95) (T)	TxS (X)	B-X (Y)	B+X (Z)	VxY	VxB	VxZ
PED (+)	10.5	.140	.020	1.67	.033	.11	.17	1.12	1.47	1.8
SHEL (+)	36.6	.045	.015	1.67	.025	.02	.07	.73	1.64	2.6
MIND (+)	.1	2.360	.77	1.67	1.28	1.08	3.64	.11	.23	.4
IATT (+)	2.2	.630	.28	1.67	.47	.16	1.10	.35	1.39	2.4
OCAR (+)	62.3	.048	.02	1.67	.03	.02	.08	1.25	2.99	5.0
CONSTANT (-)	-							-4.3	-4.3	-4.3
MIN CUS	Y1xPED+Y2xSHEL+Y3xMIND+Y4xIATT+Y5xOCAR+Constant							-0.74		
MID CUS	B1xPED+B2xSHEL+B3xMIND+B4xIATT+B5xOCAR+Constant								3.42	
MAX CUS	Z1xPED+Z2xSHEL+Z3xMIND+Z4xIATT+Z5xOCAR+Constant									7.8

Where:

Mean Value (V) is the empirically determined mean of a variable in the main phase of study.
Reg. Coef. (B) is multiple regression coefficient in the main model relating to gent's outfitters.
Std. Error B (S) is the standard error of the estimate for B
T (.95) (T) is the T statistic for a 95% confidence interval with 68 degrees of freedom.
Applying confidence limits to calculated values for the regression coefficients allows a range for each to be calculated as follows:
Y = B - Std. Error B x T(.95)
Z = B + Std. Error B x T(.95)
The values for B in the formula are then replaced by Y and Z in turn.
MIN CUS is the lower limit of the predicted range for the number of customers.
MAX CUS is the upper limit of the predicted range for the number of customers.

TAK = 2.027CUS + 0.74

(0.13) (SEB)

where: CUS = the mean number of customers in the shop,

TAK = the mean takings in pence per minute.

SEB = the standard error of the coefficient of CUS.

Confidence intervals for the estimation of takings are calculated in a similar manner to that described for mean customers. Applying this to the extremes of the range of the estimates of mean customers in an "average shop" gives an estimated range for takings of between 0 and 18 pence per minute. Again a probability level of 0.05 is used.

7.2.2 Gent's Outfitters

An example of the calculation of the 95% confidence interval for mean customers in a gent's outfitters shop (CUS) is presented in Table 7.2. A` shop taking mean values for centrality-to-other shopping, advertising, etc. is expected to have between 2 and 4.5 customers in it at any one time. Conversion to takings is carried out using the following empirically derived formula:

TAK = 3.9CUS + 4.94

(.49) (SEB)

where: CUS = the mean number of customers in the shop.

TAK = the mean takings per minute.

SEB = the standard error for the value of the coefficient of CUS.

TABLE 7.2 The Principal Model Relating to Gent's Outfitters: The Calculation of 95% Confidence Limits for the Expected Value for the Mean Number of Customers, Using Empirically Determined Mean Values for the Independent Variables.

Variable	Mean Value (V)	Reg. Coef. (B)	Std. Error B (S)	T (.95) (T)	TxS (X)	B-X (Y)	B+X (Z)	VxY	VxB	VxZ
ADV (+)	82.3	.0016	.00020	1.67	.00033	.0013	.0019	.10	.13	.16
SHEL (+)	100.0	.0029	.00080	1.67	.00134	.0016	.0042	.16	.29	.42
UNITS(+)	1032.0	.0002	.00008	1.67	.00013	.0001	.0003	.07	.20	.34
								.33	.63	.93
FAN (x)	4.2							4.20	4.20	4.20
								1.38	2.64	3.89
CONSTANT	-							.67	.67	.67
MIN CUS	(Y1xADV + Y2xSHEL + Y3xUNITS)FAN + 0.67							2.05		
MID CUS	(B1xADV + B2xSHEL + B3xUNITS)FAN + 0.67								3.31	
MAX CUS	(Z1xADV + Z2xSHEL + Z3xUNITS)FAN + 0.67									4.56

Where:

Mean Value (V) is the empirically determined mean of a variable in the main phase of study.
Reg. Coef. (B) is multiple regression coefficient in the main model relating to gent's outfitters.
Std. Error B (S) is the standard error of the estimate for B
T (.95) (T) is the T statistic for a 95% confidence interval with 68 degrees of freedom.
Applying confidence limits to calculated values for the regression coefficients allows a range for each to be calculated as follows:
Y = B - Std. Error B x T(.95)
Z = B + Std. Error B x T(.95)
The values for B in the formula are then replaced by Y and Z in turn.
MIN CUS is the lower limit of the predicted range for the number of customers.
MAX CUS is the upper limit of the predicted range for the number of customers.

Confidence intervals for the estimation of TAK are calculated in a similar manner to that described for CUS. Applying this to the extremes of the range for estimates of mean customers in an "average shop" gives an estimated range for takings of between 11 and 26 pence per minute. Again a probability level of 0.05 is used.

7.3 Application of the Models by Retail Operators

A retailer may apply the models at two levels. Firstly the model may be used to indicate which issues should be given priority in making potential improvements to a marketing strategy. Secondly it may be used to quantify the potential gains from a making a given change. These may be compared with estimated costs in order to select an optimum strategy.

7.3.1 Greengrocers

In using the model to assess priorities, a gent's outfitter may simply note that his/her primary concern should be to maximise pedestrian traffic, shelf space, interior attractiveness and car ownership in the catchment area. Independent retailers might also consider conversion to multiple status. According to the model it is pointless to attempt to increase trade by price-cutting or additions to range. These retailers should attempt to maximise performance by means of the selection of the most highly-trafficked site available all other things being equal. Sites in areas of high car-ownership appear to be most successful. Within the shop, shelf-space devoted to major items should be maximised, and the interior made as attractive as possible by means of suitable displays.

A retailer may attempt to quantify the effect of a given change by inserting the relevant values into the equation. The following will serve as an example. A shop has 10 pedestrians passing within 20 feet every minute on average throughout the working week, 40 sq. ft. of shelf space devoted to apples, potatoes, tomatoes, mushrooms and greenpeppers, minimal interior attractiveness (score=1). The shop is located in an area in which 50% of households have access to a car and is owned by an independent operator. The mean number of customers in the shop at any one time during the working week may be calculated as follows:

Mean Customers = .14 x 10 + .04 x 40 + 2.36 x 0 + .63 x 1
+ .048 x 50 - 4.3
= 1.4 + 1.6 + .63 + 2.5 -4.3
= 1.8

The retailer could check the accuracy of this estimate by monitoring average customers. If this retailer proposed to construct additional shelf display units so that shelf space was increased to 80 square feet and interior attractiveness by 200% (IATT=3) the estimated performance is calculated as follows:

Mean Customers = .14 x 10 + 0.045 x 80 + 0.63 x 3 + 0.048 x 50
- 4.3
= 1.4 + 3.6 + 1.9 + 2.5 - 4.3
= 5.1

The change has resulted in a massive 183% increase in the calculated value for the performance measure. Unfortunately it is not possible to predict that this would in fact be the result in a

shop if this change were made. The confidence interval for predictions at .05 probability varies by 100% either side of the quoted figure and it is possible (perhaps in exceptional circumstances) that trade levels might actually decrease after the change. Athough this is unlikely it would in no way conflict with the dictates of the model. Clearly a lack of precision of this magnitude tends to undermine the utility of the model as far as cost-benefit analysis is concerned since the probability of achieving a given increase in trade is not very large. Further problems arise where an absolute, rather than relative, estimate of performance is required since this requires use of the conversion formula, a source of further imprecision.

7.3.2 Gent's Outfitters

In using the model to assess priorities, a gent's outfitter may simply note that his primary concern should be to maximise centrality-to-other-shopping, advertising, shelf space and trading floorspace in preference to other factors such as price advantage or depth of assortment. The model indicates that the latter have no measurable effect on performance. Retailers should also take note that simply to maximise centrality while holding other variables at minimal values has little effect. Likewise increasing advertising, shelf-space and trading floorspace have little impact if centrality-to-other shopping is minimal.

Given that small retailers are unable to expend even a fraction of the indicated maxima for advertising (£768,000) it seems most advisable that these retailers should attempt to

maximise performance by means of the selection of an optimally central site of largest possible size. Given that rents are much more likely to reflect traffic flows than centrality-to-other shopping, acquisition of a suitable site may be relatively unproblematic. A low cost improvement suggested by the model would involve conversion of stock rooms and other non-trading areas to areas to which customers have access. At the same time the area covered by actual displays of jeans, trousers, shirts and jumpers should be maximised.

A retailer may attempt to quantify a given change by inserting the relevant values into the equation. The following will serve as an example. A retailer spending nothing annually on advertising, having shelf-space of 100 sq. ft. and trading floorspace of 500sq.ft. is located in a position such that his/her immediate location is surrounded on 3 sides out of six by areas devoted to retailing (see chapter 6 for precise definition). These values may be substituted in the equation as follows:

$$\begin{aligned}\text{Mean Customers} &= (0.0016 \times 0 + 0.003 \times 100 + 0.0002 \times 500) \times 3 \\ &\quad + 0.67 \\ &= (0 + .3 + .1) \times 3 + .67 \\ &= 1.9\end{aligned}$$

If this retailer proposed to move to a similar shop in more central location (in this case one surrounded on four sides out of six), the expected value for mean customers would be calculated as follows:

$$\text{Mean Customers} = (0 + .3 + .1) \times 4 + .67$$

The change has resulted in a 21% increase in the calculated value for the performance measure. Unfortunately it is not possible to predict that this would in fact be the result in a shop if this change were made. The confidence-interval for predictions at .05 probability vary by about 50% either side of the quoted figure and it is possible (perhaps in exceptional circumstances) that trade levels might actually decrease after the change. Although this is unlikely, if it did occur, it would not be in conflict with the dictates of the model. Clearly a lack of precision of this magnitude tends to undermine the utility of the model as far as cost-benefit analysis is concerned since the probability of achieving a given increase in performance is not very large. Further problems arise where an absolute, rather than relative, estimate of performance is desired since this requires use of the conversion formula a source of further imprecision.

7.4 The Wider Implications of the Models

In this section it is intended to examine recent developments in retailing, in the two sectors studied, in the light of the results obtained. Possible future developments are also considered.

7.4.1 Greengrocers

In Chapter 2 it is noted that the encroachment of large multiple retailers has not been consistent throughout all types of

retailing but seems to be concentrated in particular trades. Within food retailing certain commodities stand out as being strongholds of the independent retailer. Greengrocers were chosen for study precisely because they represent such a group. Of all greengrocery sales 56% are through independently operated outlets compared to only 25% for groceries and provisions.

One explanation of the growth of large organisations operating large shop units is that the the price advantage made possible by economies of scale makes them more attractive to customers than the traditional small groceries. This may be termed the "homogeneity argument" since it assumes that prior to the introduction of supermarkets grocery outlets were largely homogeneous in the sense of there being little difference in prices and product range in different shops. Customers saw little advantage in shopping around since the gains from such behaviour would be small. Subsequently groceries have become the subject of comparisons because supermarkets have introduced an element of heterogeneity into the system. Real gains may now be made by choosing an appropriate outlet. Consequently, customers are now willing to travel much larger distances for their grocery shopping. Consistent with this argument is the view taken by DITB (1976) that the strength of the independent in greengrocery retailing is due to their flexibility in introducing new products and a distribution system (wholesale markets) which occasionally gives the independent a price advantage.

An alternative, or perhaps complementary, view might be termed the "frequency argument". An increase in the number of women (particularly married women) at work (see Chapter 2) has lead to

less time being available for shopping. At the same time ownership of fridges and freezers, the introduction of other food preservation technologies, and the increasing availability of cars (which facilitate transportation of bulk quantities) have made it viable for the majority of grocery purchases to made less frequently than was formerly necessary. According to this argument, it was the frequency of purchase of groceries which encouraged local shopping. The necessity for frequent purchase would have have deterred search behaviour whether or not price savings or other gains could be made. Frequent search or travel to distant outlets carries costs of both psychological and financial types which are too great to be set against savings on the small quantities of produce involved. The shift to less frequent patterns means that there is a decrease in the psychological costs (tedium) involved in search. Increased travel costs may also be set against the saving on bulk purchase. Only in the context of such a shift do outlets offering lower prices become attractive to the customer. If the frequency argument is well-founded, it is likely that independent greengrocers derive their apparent resilience from the need for frequent purchase of these products on account of their perishability. This ensures that customers eschew search behaviour to a large extent. In consequence, the majority of greengroceries are purchased from traditional small shops in dispersed locations.

The current research throws considerable light on this issue. Little support is forthcoming in favour of the homogeneity argument; there is little evidence that either price or product-range is particulary influential in determining where people shop even though there is considerable variability between shops. The

position of pedestrian traffic as the principal determinant of trade is consistent with the status of greengroceries as convenience goods however. The research therefore supports the frequency argument.

The foregoing analysis indicates that the future of the independent green grocer is fairly secure and that the current attempts by some major grocery chains to increase their presence in the field will be only partially successful at best. Although many customers would, no doubt, prefer to purchase greengroceries at the same time as other grocery items, most items will continue to be purchased locally. One ominous sign for the small retailer is the apparent positive effect of belonging to a multiple chain on the performance of a shop. It may be that customers have greater confidence in such outlets perhaps viewing them as superior in terms of product quality.

Several emergent developments may serve to alter the current situation to the advantage of the larger organisations. The emphasis of some large retailers, such as Marks and Spencer, on quality (albeit at a price) may mean that shoppers may purchase less frequently because the items last longer than usual. Similarly but more significantly, a number of technological developments, which have been evolved in order to reduce wastage in the distribution system, may also serve to prolong storage life. Examples of this are chilling of crops from the harvesting stage and throughout the distribution process (the so-called cool chain, Co-operative News, January 9th, 1985) and the yet-to-be-legalised irradiation techniques (Kimber 1985). Both of these processes retard the ripening of fresh fruit and vegetables.

Any trend towards less frequent purchase would tend to weaken the position of the the independent, especially if consumers showed a tendency to purchase greengroceries at the same outlet as their other major grocery purchases. This would inevitably favour the supermarket and superstore.

7.4.2 Gent's Outfitters

The retailing of gent's wear has been subject to considerably greater penetration by multiple retailers than has been the case for greengroceries. Their share of sales of men's and boys' wear (admittedly a wider category than that actually studied) stood at around 60% in 1982 (CSO 1984). The advantage enjoyed by multiples is usually considered to arise from the cost savings, due to economies of scale, being passed on in the form of lower prices, these are assumed to be attractive to customers (Dawson and Kirby, 1977A, Hedderwick, Stirling, Grumbar 1979)). The study failed to detect any effect of price on sales in gent's outfitters shops. At no point in the analysis did any measure of price appear capable of making any contribution to the model. Neither is there any association between price and organisation size. The present study suggests that multiples in this trade have benefited most from the economical use of advertising (which may be spread over a large number of outlets) and their greater ability to gain access to prime sites (see Chapter 2).

Data on physical shop size is not collected in surveys such as the Retail Inquiry and changes must be inferred from data on turnover-per-shop, number of shops and employees-per-shop. Although the number of men's and boys' wear shops decreased by 50% between

1971 and 1982 it seems likely that this is due to the increased market share taken by mixed retailers (classified separately). Since neither turnover per shop nor employess per shop shows any evidence of increase over the period, it appears that until 1982 at least, menswear retailers had not yet taken advantage of the apparent attraction of the large shop for the consumer.

The author in unaware of any data showing trends in location for this type of shop although it is suspected that the concentration of nearly all the shops in the study in city and large town centres may be the result of a changing pattern of geographic dispersion. Previously a greater number of these shops may have been located in outlying districts. There is no evidence in the study that gent's fashion is subject to the movement out of town which is evident in other retailing types such as food, furniture, and DIY. The research suggests a very clear reason for this in that centrality to other shopping is an indispensible prerequisite to good performance.

In terms of future developments, the outlook would appear to be very bleak for the small shop in gent's fashion retailing. The major factors which have been found to affect sales in these shops seem to favour the larger concerns. Although it is possible that multiple penetration has already reached its upper limit; there is evidence that, in terms of making best use of advertising (the second most important influence) and display and in the introduction of larger shops, even multiples have hardly begun to exploit their potential in attracting customers. It seems likely that there will be a trend towards larger-sized shops in this type of retailing; a process which may already have begun. Gent's

outfitters shops are unlikely to appear as large free standing units on industrial estates although some participation in large out-of-town shopping centres seems likely if these are allowed to develop to any extent in future years.

7.5 Conclusion

The present chapter has examined the main implications of the findings in terms of; the quantitative inputs and outputs of the models, the precision attaching to any predictions, the manner in which individual operators could make use of them and the lessons for the interpretation of past and the prediction of future events in the two KOBs studied. The models appear to have considerable application both in a practical and theoretical sense although the degree of precision attached to predictions is not as high as had originally been hoped.

The chapter which follows considers how the findings from these two diverse retailing types may be applied to the construction of a general model of marketing mix effectiveness in retailing.

CHAPTER 8 LESSONS FOR THEORY BUILDING

Summary

8.0 The theoretical "potentialities" of retailing have not been achieved due to the fragmented nature of the research effort to date. The present research allows comparison of two distinct kinds of retail business.

8.1 This comparison reveals dramatic differences in the variables which influence performance and in the manner of their interaction.

8.2 An existing system of classifying types of product, which can be used to indicate consumer buying behaviour, is that of "product class". This categorisation is dependent mainly on the frequency of purchase and the heterogeneity of the shopping environment for the product.

8.3 This system appears to offer a viable explanation of the differences in results for the two KOBs studied.

8.4 Consideration of other kinds of retailing indicates the inadequacy of traditional product class as a general model of retailing.

8.5 There is some evidence that bulk characteristics and elasticity of demand need to be incorporated into the categorisation, in order to produce a model of general applicability to specialist retailing.

8.6 An improved theoretical model takes account of shopping effort, elasticity of demand and bulk characteristics and links them to the principal marketing influences affecting performance. This model appears plausible in terms of conceptualisation and the predicted effects.

8.7 The inputs of this model are frequency of purchase, variability of the shopping environment, bulk characteristics and elasticity of demand. Outputs are typical location characteristics, the main marketing variables affecting performance, their relative influence and the manner of their interaction.

8.8 The model has considerable promise as a basic theoretical framework which might be subjected to future testing and improvement, in addition it may have some value in providing general guidance to assist in decision making for retail practitioners and policy-makers.

8.0 Introduction

In a paper presented at New York University Institute of Retail Management Robert Bartels (1980) notes:

> The potentialities of theory development in retailing research, teaching, and practice have not been achieved because of overemphasis on its practicality.

This is not to say that theories in, or of, retailing do not exist. Rather to the contrary; the many individual aspects that have been studied at various times, in pursuit of narrow objectives or short-term goals, have led to a confusing array of literature on potential effects with little in the way of overall structure. In the case of the research problem investigated here, the large number of marketing variables which have been found to affect retail trade in some way or other has already been noted. Such a situation has arisen for a number of reasons:

a) Individual aspects have been studied without considering how other variables might be interrelated with them. Retail experiments in display (see Lipstein 1980) and much of the work on location fall into this category.

b) Where several marketing variables have been studied simultaneously, this has been confined to the branches of a single organisation which limits the extent to which general conclusions can be drawn and the availability of the information concerned (see Davies 1973 and Chell and Haworth 1983).

c) The different objectives of the various studies, and the variety of methods used, makes it difficult to make valid comparisons of the effects of variables in different kinds of retail business.

It is considered by the present author that the lack of any serious attempt to develop a comprehensive theoretical framework of marketing mix effectiveness reduces the utility of research into specific techniques and specific kinds of retailing since extraneous factors cannot be subject to adequate control. In addition, there is a failure to exploit the body of knowledge available in order to provide any clear insight into the direction in which research efforts might be profitably applied. As a consequence of this, each new investigation tends to start from scratch rather than building on previous knowledge.

Earlier it was suggested that an important feature of the present study was that it might facilitate the creation of a general theory of marketing mix effectiveness in retailing. The study offers a unique opportunity to compare results obtained by standardised methods using randomly selected shops in two very distinct types of retail business. Although it is not possible to provide empirical evidence in support of the theoretical conclusions reached, it is considered that such an exercise is justified in that it suggests several areas in which future research might be particularly valuable.

The explanation proceeds in stages, beginning with a comparison of the results for the two KOBs studied. An existing

theory will be examined to determine the extent to which it can account for the main differences in the two sets of results. The universality of such a model (which combines the empirical findings of the present study with an existing system of categorisation by product type in order to predict location and marketing variable salience) will then be considered and some possible improvements evaluated. Finally an improved model will be presented and its value to those with an interest in retailing issues will be outlined.

8.1 Comparison of Results for the KOBs Studied

The results for the two KOBS studied are presented in Figure 8.1. There are considerable contrasts and some similarities between the two models. Performance in each case is largely dependent upon location; in the case of greengrocers upon the pedestrian traffic in the immediate vicinity of the shop, in the case of gent's fashion upon centrality-to-other-shopping. An important effect is that in the case of gent's outfitters the location variable is dependent for its effect upon the other variables, its relationship being multiplicative. In the case of greengrocers the location variable acts independently; its impact in terms of performance is simply added to that of other less important variables. Advertising and floorspace affect gent's oufitters but not greengrocers which depend on ownership status, attractiveness and car-ownership. Shelf display space affects both KOBs.

Fig 8.1 Two Models for the Determination of the Performance of Shops in Greengrocery and Gent's Fashion Retailing.

For Greengrocers Shops:

$$CUS = \underset{[0.52]}{0.14PED} + \underset{[0.22]}{0.045SHEL} + \underset{[0.22]}{2.36MIND} + \underset{[0.17]}{0.63IATT} + \underset{[0.15]}{0.0480CAR} - 4.3$$

Where:
CUS is the mean number of customers in the shop (measured on 10 occasions).
PED is the mean number of pedestrians passing within 20 feet of the shop (measured on 6 occasions)
SHEL is the display space in sq.ft. devoted to four specific lines.
MIND is the ownership status (0 = less than 10 branches, 1 = 10+ branches in chain).
IATT is the interior and exterior attractiveness of dsiplays and equipment measured on a scale 1-6.
OCAR is the % of households with access to a car in the area from which the centre in which the shop is located might be expected to draw trade.
Beta weights for variables (relative influence are given in brackets)

For Gent's Fashion Outfitters:

$$CUS = (\underset{[0.35]}{0.003SHEL} + \underset{[0.48]}{0.0016ADV} + \underset{[0.22]}{0.0002UNITS})FAN + 0.67$$

Where:
ADV is the expenditure on media advertising during 1984 in $000's
UNITS is the gross trading floorspace (excludes storerooms offices) of the shop.
FAN is the centrality to other shopping measured as the extent to which the area in the immediate vicinity of the shop is surrounded by other retailing (see chapter 6).
SHEL is the display space in sq. ft. devoted to four specific lines.

It will be useful to consider an existing method of accounting for these differences.

8.2 An Existing Classification Model

A system of categorisation which appears to offer a sensible means to distinguish between different kinds of business in retailing is that of product class. This is discussed in detail in Chapter 3. Categories, into which products might be placed and which link them to certain types of consumer search behaviour (and thus indirectly to marketing mix variables) were originally defined in 1948 by the American Marketing Association (AMA 1948). Two main categories exist; those of "convenience" goods and "comparison" or "shopping" goods (a third category of "speciality" goods was considered by Holton (1958) to be ambiguous and to overlap the other categories; a view with which the present author is in full agreement).

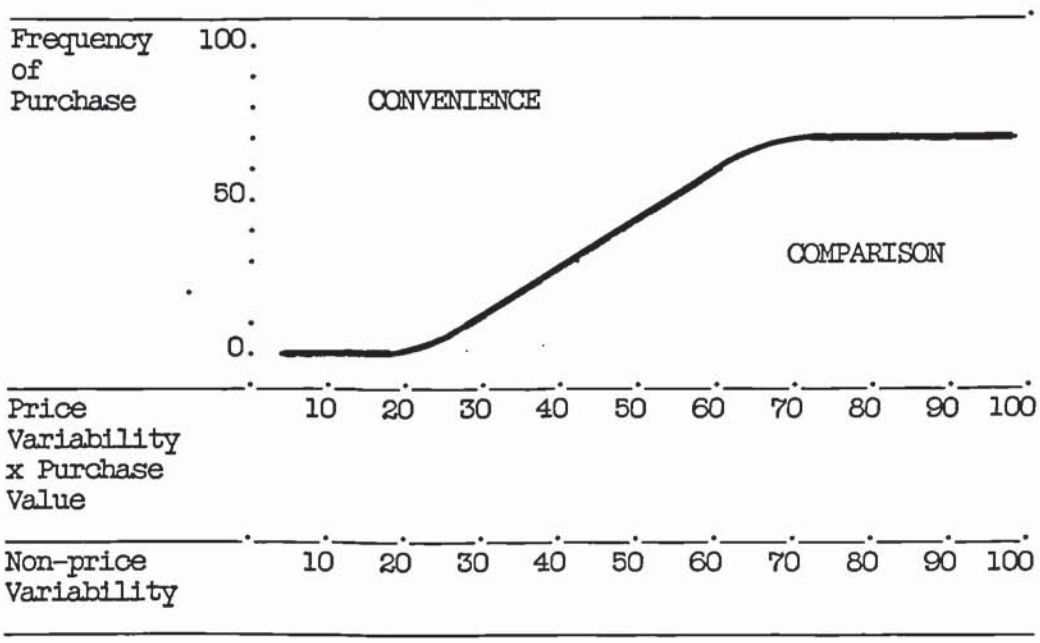
Although it is not usually made explicit when product class is discussed, it seems to the author that the definitions used for the goods categories incorporate elements of both cause and effect. Convenience goods are usually described as being frequently purchased, of relatively low purchase value and subject to standardisation. They are those goods which the typical purchaser will only expend a minimum of effort in obtaining. As Holton argues the gains expected by the purchaser in undertaking search and comparison behaviour are seen to be outweighed by the physical and financial costs of search. Comparison goods are infrequently

purchased, of relatively high purchase value, not subject to standardisation and are goods which the purchaser is willing to make an effort in purchasing. For the purposes of the present study the author has attempted to separate cause from effect in the definition of product class. Comparison goods are considered to be those for which the typical consumer engages in some form of search behaviour while convenience goods are those for which search does not occur (1). These effects are ascribed to certain causes which include; the frequency of purchase of the good, the typical purchase value and the heterogeneity of the shopping environment. For a frequently purchased good, search behaviour may lead to considerable psychological costs for the purchaser owing to the tedium involved in frequently repeated behaviour. A low purchase value probably means that gains from search behaviour will be small. Similarly where the shopping environment, with respect to the good, is homogeneous (in terms of the variety of prices, products etc. available from shop to shop) search behaviour may be judged to be pointless (2).

For the purposes of the present chapter it is necessary to be even more specific in both quantitative and qualitative terms in order to facilitate categorisation. A suggested scheme for achieving this is presented in Fig. 8.2, a number of assumptions are made which go beyond previous conceptualisations of product class:

a) High frequency of purchase is considered to be both necessary and sufficient for classification as a convenience

FIG. 8.2 The Classification of Products, Product Groups and Specialised Kinds of Business According to Frequency of Purchase, Heterogeneity of the Shopping Environment and Purchase Value.



Where:

Frequency is the number of times per year a given product, or homogeneous product group is purchased on aggregate.

Price variability is the ratio between the lowest and highest price levels encountered.

Purchase value is the typical expenditure on any one occasion.

None price variability refers to a salient none-price dimension or dimensions it is suggested that a suitable quantification would be represented by the ratio of the maximum empirical score to the range (maximum-minimum) multiplied by 100.

No maximum is implied for any variable

good, it is assumed that even when considerable gains may be made from search most customers will eschew this for regular purchases.

b) The above situation is assumed to apply when purchase frequency is greater than 50 times per year.

c) Heterogeneity is determined along a number of dimensions according to the salience of particular variables. In the case of the present study it might be considered that these will be those represented in the models for the KOBs concerned. A suitably weighted average might therefore be constructed. Such a method suffers from the defect that it overlooks potentially salient dimensions that do not display sufficient variablity to be currently regarded by the consumer as heterogeneous. In addition no account is taken of variability beyond the currently existing limits.

d) In the case of price it is assumed that the effect of variability is dependent upon purchase value.

e) The suggested procedure for quantification of variability involves expressing range of variablity (i.e. maximum choice-minimum choice) as a percentage of the empirical maximum. In the case of price this is multiplied by the purchase value expressed in pounds.

Although some weaknesses are apparent in a theoretically derived classification system of this type, it is suggested that this

nevertheless represents a viable means by which to assess the KOBs especially when the conclusions reached are supported by other data.

In terms of marketing mix effectiveness this model facilitates certain predictions as to which influences will have most impact on sales of shops according to the category into which they fall. For convenience goods, it may be predicted that shops which are located close to consumers, either in terms of domicile (i.e. maximising the number of customers who can make a journey from home with minimum effort) or in terms of movement while engaged in other activities (maximising the vehicular and pedestrian traffic close to the shop) will prove to be the most successful. Likewise carrying a full range of goods (in order to maximise the potential to satisfy different and possibly complementary demands) is expected to make an impact. Other variables which may relate to search behaviour such as number of choices, prices, and location close to other shops of similar type with which customers may make comparisons (but which also may fragment total trade), will be of minor importance at best. It can be expected that socioeconomic factors will affect the aggregate tendency to classify goods as convenience; relatively high mobility having the effect of reducing this type of trade by increasing the ease with which customers may search. Possession of sophisticated storage facilities may lead to a decrease in purchase frequency to similar effect. A contrary effect is also possible where dual markets, for such items as groceries, result from less frequent trips being made to distant superstores and supermarkets. This

would be expected to increase the need for local outlets for "topping up" and perishable items (see Kirby 1976).

The situation regarding comparison goods is expected to be very much the reverse of that described above with the importance of location giving way to other shop attributes in determining shop choice. Nevertheless it might be predicted that, all things being equal, shops would benefit from locating close to competitors since this would facilitate search with minimum effort on the part of the consumer. Attributes of the shop which might be salient to the customer such as low price, number of choices (assortment depth) etc. are expected to play a decisive role in this type of retailing. Again we might expect that mobility and storage facilities of the populations within the catchment area of the shop (or the shopping centre within which it is located) will affect sales in a positive manner.

8.3 The Application of the Model to the Research Findings

The previous section has outlined the essential features of the "product class" model. To what extent can this account for the results obtained in the present investigation of greengrocers and gent's outfitters? Application of the model to the research findings involves classifying both KOBs studied and presents considerable problems of quantification if causal factors alone are considered. There is no definitive source of information on frequency of purchase for these goods and judgement must be based on estimates. Variability in the principal marketing mix variables

identified in the study can be assessed from the empirical data available and appears to considerable for both KOBs (see Table 8.1). If it is assumed that greengroceries are typically purchased in excess of once per week and that gent's fashion is purchased less frequently (perhaps monthly), we arrive at the tentative classification of greengroceries as convenience goods while gent's fashion items are comparison or shopping goods. Consideration of the empirically determined attributes of the two types of shop would appear to support this conclusion. Greengrocers, as expected, are mainly influenced by pedestrian traffic past the shop quite regardless of other shop attributes. Moreover, the majority of outlets are located away from city centres and this also seems consistent with its being a convenience good. Gent's outfitters, by contrast, are not influenced by location in quite the same way; although these outlets benefit by being located centrally to other shopping and therefore (presumably) within the vicinity of competitors, good location does not guarantee good performance as is the case with greengrocers. Instead good location is merely a prerequisite which must be combined with a number of other features which are presumably attractive to the customer and taken into account in choosing a shop and a purchase. These effects are precisely those which it was thought would be associated with a comparison good.

Somewhat illogically, customers do not appear to take into account the other attributes which it was predicted would be associated with the relevant goods type, preferring to rely on clues such as shelf-space and, in the case of gent's fashion,

TABLE 8.1 Heterogeneity of the Shopping Environment for Greengroceries and Gent's Fashion Wear.

Empirical Measure	Greengroceries			Gent's Fashion Wear		
	Min.	Max.	Percentage Variability	Min.	Max.	Percentage Variability
No. of Lines	10	38	74	4	30	86
Advertising	-	-	-	0	768	100
Shelf Space	11	80	86	18	425	96
Floorspace	120	900	65	180	4300	96
Shopping Centrality	0	5	100	1	6	83
Car Ownership	46	75	38	46	76	39
Centre Size	1	32	97	4	32	88
Pedestrian Traffic	0.8	55	98	1.3	75	99
Self-Service	0	100	100	1	3.4	70
Choice	0.5	1.6	69	0.3	2.3	87
Price	13	38	66	0.6	2.6	77
Limits	14.6	46	67	0.4	1.9	79

For precise definitions of variables and measurement units see chapter 6

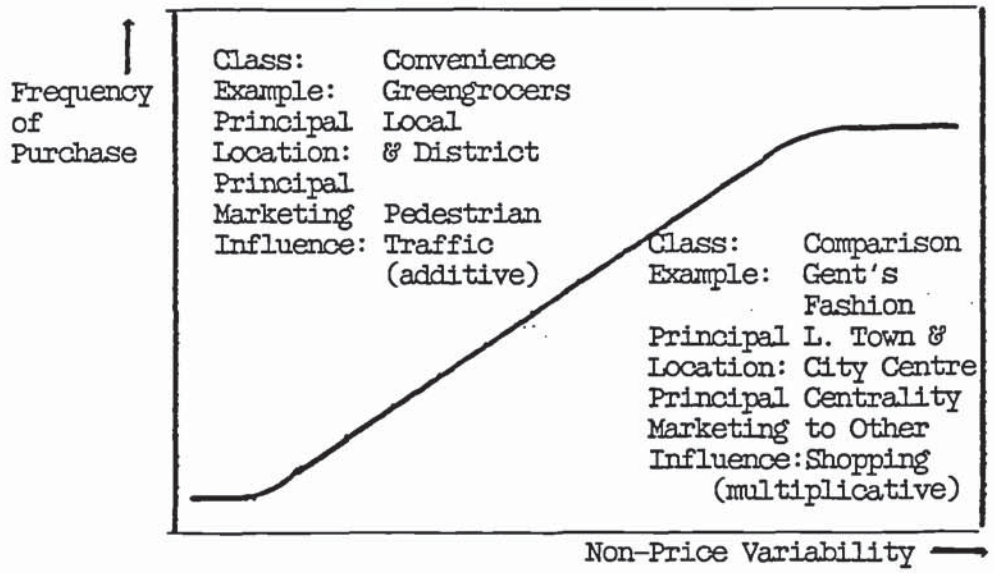
Percentage variability is the range of variability expressed as a percentage of the maximum.

advertising and shop size. These factors have been discussed in some detail in an earlier chapter.

In spite of considerable variability it was not found that price was important and in presenting the model, as it has been described so far (Fig. 8.3), only non-price factors have been included as the determinants of heterogeneity in the shopping environment for a good. In terms of socio-economic factors car-ownership appears to exert an influence on the sales of greengroceries which is consistent with the existence of a dual market for these products. This variable has no influence in the case of the comparison good studied; an effect which may perhaps be attributed to such factors cancelling out in the larger catchment areas associated with the larger centres in which these shops are located.

It is clear that the product class model represents a means to explain the differences in the results for the two kinds of retailing studied, few anomalies are apparent. To what extent can the marketing mix variables affecting shop sales (and other attributes which have been found to be associated with the two KOBs studied), be considered to represent the general situation applicable to the retailing of goods in the appropriate product class?

Fig. 8.3 Categorisation of Greengrocers and Gent's Outfitters by Product Class Showing Empirically Determined Shop Attributes.



Aggregate frequency of purchase for the product categories concerned was estimated. It was considered reasonable to assume that purchases of greengroceries occur approx 100 times per year while those for gent's fashion occur much less frequently (say twelve times).

Non-price variability was estimated from differences between the lowest and highest-scoring shops on each of the dimensions which the study has identified as important in determining shop choice.

Price variability x purchase value was omitted from the determinant criteria as it was apparent that in spite of considerable variablity price had little influence on the performance of either KOB.

8.4 Assessing the Universality of the Model

It is possible to make an assessment of this model by attempting to "fit" further specialist retail types to the model and noting any departures from expected behaviour. For this purpose it is necessary to make estimates of frequency and heterogeneity and the typical location patterns associated with particular KOBs.It is accepted that in the absence of a really rigorous evaluation these may be subject to error. A number of trades thought to be concerned with convenience goods are considered, these are mainly classed as such on the basis of the perishability (and therefore high frequency of purchase) of the goods they offer for sale. They include butchers, bread and cake confectioners and confectioners/ tobacconists/newsagents (CTN). The latter is concerned with one of the most perishable goods of all (i.e. newspapers). The classification of this KOB also took account of other goods such as magazines, chocolate confectionery and tobacco which are subject to a considerable degree of homogeneity in the shopping environment facing the customer. Product range tends to consist of the same mix of strongly branded goods at fairly standard prices. These KOBs are typically located in district and local shopping centres with CTN almost invariably being present even in the smallest (as such it is probably the archetypal convenience trade). These results tend to support the model and it appears quite plausible that such trades are indeed affected similarly to greengrocers in terms of the influence of marketing mix variables.

A further trade which might at first appear to fit into the convenience class quite comfortably is that of grocery and provisions; many outlets are located in local and district centres and few centrally, moreover customers do buy many grocery articles such as bread and milk fairly frequently. This is not a conclusion that stands up to close scrutiny however. Taken as a whole it is notable that the majority of grocery purchases (in volume terms) are made in large supermarkets and superstores rather than from the small and independent corner shop. If customers typically discriminate between grocery shops to this extent, preferring the large to the conveniently located, it would hardly seem sensible to classify these goods as convenience. The obvious alternative; that they are comparison goods also gives rise to problems of reconciliation with the model. In terms of location these shops do not follow the predicted pattern tending to locate predominantly in district centres, smaller town centres and in off-centre positions on industrial estates and other edge-of-town positions. Moreover, the growth of ever larger supermarkets and supermarket chains has been attributed at least in part to their ability to pass on economies of scale in the form of lower prices (see for instance Dawson and Kirby 1977, Pichaud 1974). A reasonable probability exists that price heterogeneity should play a part in classifying this KOB and that low price may be a major influence in shop choice.

While the behaviour of this and some other trades such as furniture and DIY appears to invalidate the model, several other types of retailing appear to support it. If we ignore specialists

catering for particular ethnic tastes, jewellers are almost exclusively located in the larger town and city centres along with ladies fashion, sports and toys. It seems plausible that these are subject to similar influences to gent's fashion outfitters.

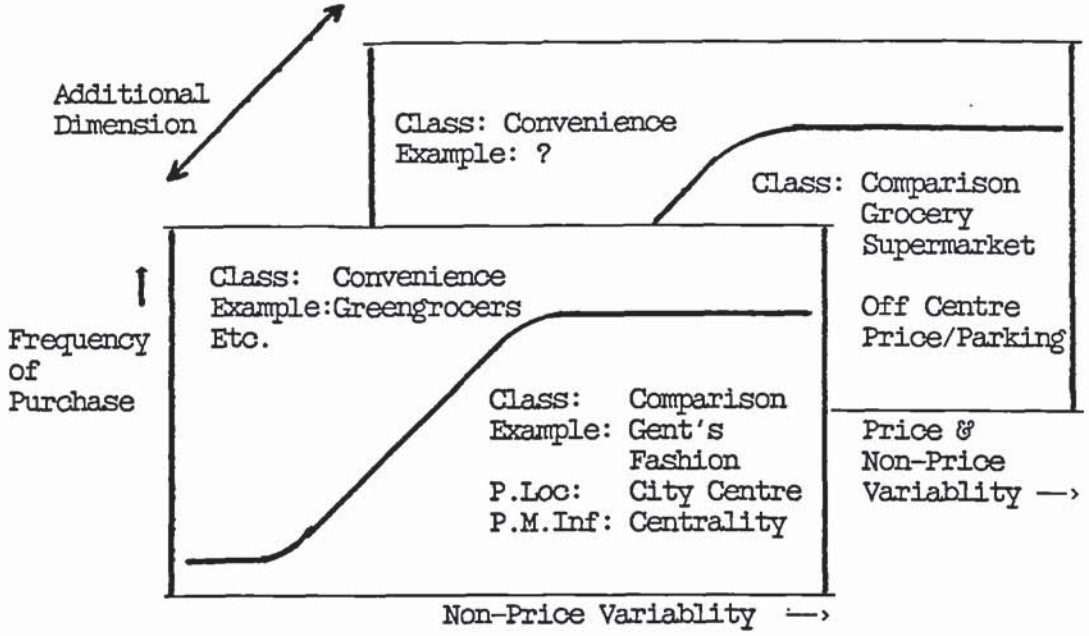
Given the existence of anomalous effects which appear to apply to comparison goods it is clear that the model as stated lacks universal applicability and it is necessary to consider what improvements might be made.

8.5 Improving the Classification Model

Fig.8.4 presents an illustration of one possible way in which the model under development might be improved. It is suggested that an additional dimension exists which, while not having a great deal of influence on convenience goods, gives rise to two completely different sets of effects associated with shops selling comparison goods. The figure uses greengrocers and gent's outfitters shops to illustrate one set of conditions (the previous model) in which product class is determined by frequency and non-price variability. Groceries are used as an example of an anomalous trade and the suggestion is made that price takes on considerable importance both in determining product class and a possible major influence on trade. Under this set of conditions typical location is also affected.

It is reasonable to assume that some differences exist between the two types of comparison goods being considered and that these give rise to the conflicting effects. Most apparent in this

FIG. 8.4 Theoretical Considerations Indicating the Existence of an Additional Determinant Dimension of Product Class.



The choice of groceries as a comparison good is based on the assumption that most shopping for these goods involves discrimination between shops on the basis of such variables as price or car parking. No account is taken of dual market effects in which some purchases are made on a convenience basis.

The largest volume of grocery purchases are assumed to be made outside large town and city centres, a fact attested to by the recent tendency for grocery supermarket chains to move out of these centres.

respect are those which relate to the physical bulk of the goods and their status as "luxuries" or "essentials".

Purchases of groceries often include large or heavy items and if made on a weekly or even fortnightly basis have considerable cumulative bulk. Purchases of fashion wear, by comparison, usually consist of one or two items only and these are unlikely to be either large or heavy. As regards the second dimension, it is suggested that luxury goods are those for which elasticity of demand in the face of changes in income or price levels will be high. For a necessity demand is inflexible. The relative stability of grocery and provisions sales compared to the rise in retail sales in general in the post-war years (a period of rising real incomes) is an established fact (see Chapter 2), by contrast volume sales of clothing goods have increased roughly in line with real disposable incomes.

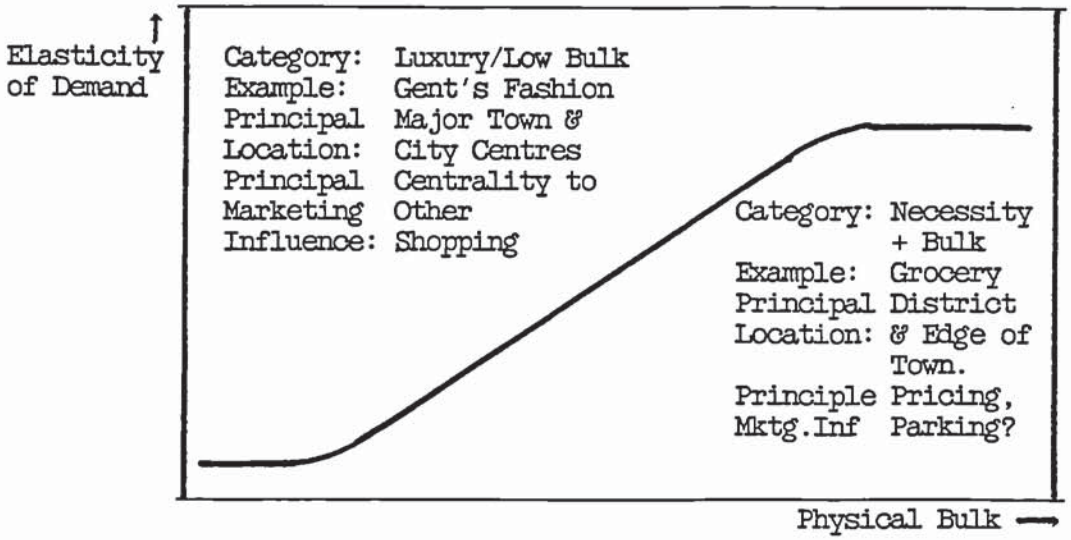
To what extent might these obvious differences between the two KOBs give rise to the conflicting set of attributes associated with each? In the case of bulk it may be surmised that considerable space is required for retailing bulky goods. In addition the customer may require that adequate parking be available close to the purchase site in order to facilitate transportation. Since city-centre sites are usually unable to meet such requirements due to pressure on space, off-centre positions are naturally favoured.

In the case of necessities, it can be argued that although overall demand for such goods is not affected by price levels, customers may nevertheless be price conscious. Purchasers may resent expenditure on such goods and attempt to reduce this, where

possible, by searching out lower prices (this does not necessarily imply a willingness to sacrifice perceived or actual quality). For luxury goods, by contrast, it is suggested that the customer may be less concerned with price than with the product itself. The main shopping effort may be directed principally towards locating a suitable product and possibly with maximising the entertainment to be derived from search and comparison behaviour. If customers are more price conscious when purchasing necessities the observed locational patterns can be explained in terms of their preference for the lower prices that result when retailers pass on cost savings on rent, rates and delivery in non-central positions. It may be surmised that where a good is both bulky and subject to inelastic demand, the savings that the retailer can make on these costs will be particularly large.

Fig 8.5 illustrates categorisation of gent's fashion and groceries according to this dimension and links them to the main location characteristics and marketing mix variables with which they are associated (the salient attributes for groceries are speculative of course). It was not thought feasible to attempt to suggest a quantification method for this dimension. In spite of this lack of precision it is argued that most of the comparison goods considered earlier fit well into this classification. Those KOBs noted as being predominantly centrally located all deal with goods that are both low in bulk and often luxurious in character (i.e. jewellery, toys and sports), while those mentioned as being predominantly located in off-centre positions are concerned with bulky goods that are often necessities as well. While garden-

FIG. 8.5 Categorisation of Comparison Goods According to Elasticity of Demand and Physical Bulk.



Those products having low elasticity of demand may be termed necessities; overall demand is not affected by short term changes in price or income levels. It is hypothesised that this condition gives rise to price price consciousness among customers.

Principle location is the location in which most trade is thought to take place, rather than the location which is numerically most popular in the case of groceries these are quite distinct.

centres are clearly concerned with goods that are both bulky and luxury in character, others such as furniture may be both bulky and necessary since it can be argued that the main demand for goods from off-centre outlets such as those specialising in flat-pack furniture is from customers seeking essentials such as beds, chairs and wardrobes. Similar considerations may apply in the case of DIY.

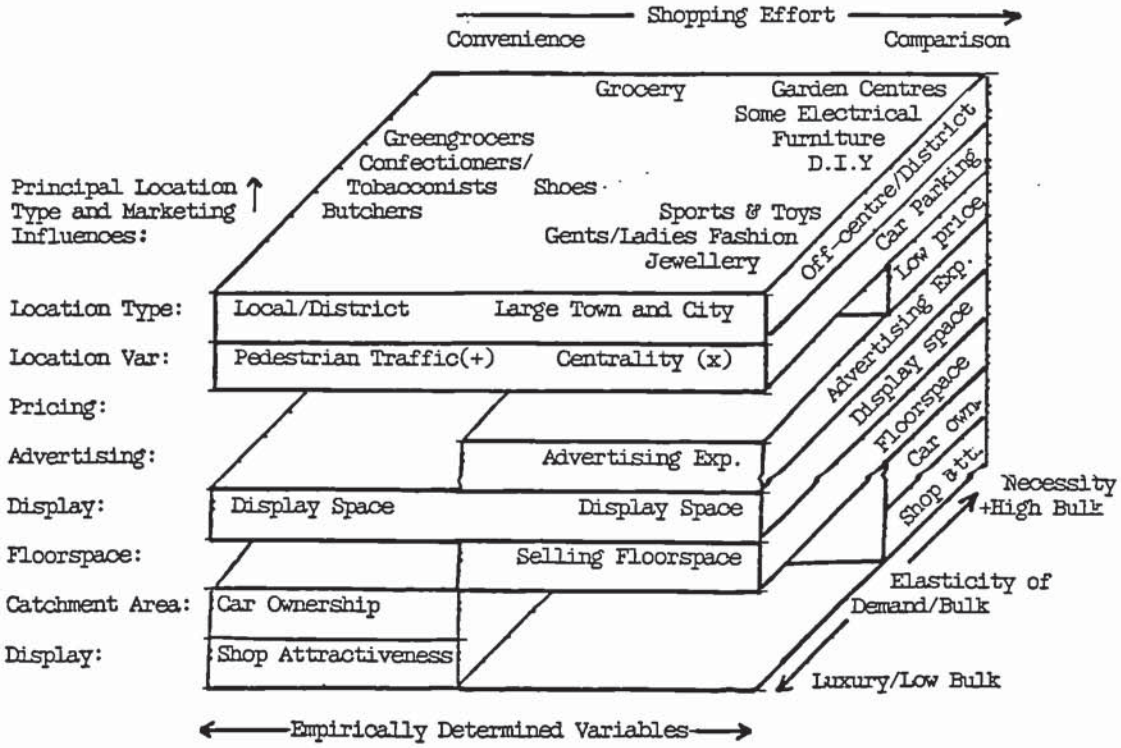
If the elasticity/bulk dimension can be considered to make a useful contribution to understanding the locational characteristics of shops selling comparison goods, this dimension can be profitably incorporated into the previous model (based on traditional notions of product class) in order to produce an improved classification (and prediction) system.

8.6 A Theoretical Model Linking Product Type to Marketing Mix Effectiveness

The position of a good in terms of shopping effort is determined as demonstrated in Fig. 8.3 and its status in terms of elasticity/bulk is determined as shown in Fig. 8.5. It is possible to illustrate the ensuing categorisation and the expected influence of marketing variables in a single three dimensional figure. Figures 8.3 and 8.5 may be regarded as subsidiary models. They are used to determine the inputs to a "main" model which is used to identify the principal influences on the trade of a given type of shop.

The main model is presented in Fig. 8.6 and takes the form of a multi-layer cube in which the four corners of the top

Fig 8.6 Classification of Specialist Retail KOBs According to Shopping Effort and Demand Elasticity/Product Bulk Illustrating How these Dimensions Interact to Determine Marketing Variable Effectiveness and General Location Characteristics.



Note:

Classification of KOBs is estimated from principal location and suspected status in terms of shopping effort and elasticity of demand/bulk characteristics.

Marketing influnces are arranged in order of their power to determine shop performance

The distinction that is made along the elasticity/bulk dimension is only assumed to be important for comparison goods.

The effects illustrated on the front elevation are empirically determined effects that are thought to apply to convenience and comparison/luxury or low bulk goods. Effects for comparison/necessity/high bulk goods are theoretically determined and have no rigorous empirical antecedents.

elevation represent different conditions of shopping effort and luxury/bulk. Vertical layers represent the main marketing mix variables arranged in the order of their influence on sales. Considering the top elevation; the lower left hand corner represents convenience trades selling luxury/non bulky goods while the upper left hand corner represents convenience trades selling necessities/bulky goods. Since most of the convenience trades listed appear to sell a mixture of necessities and luxuries (i.e. for greengrocers potatoes can be classed as a necessity but mushrooms as a luxury), these KOBs have been classified in the middle of the luxury/bulk dimension. In any case, it is not considered that this dimension is particularly important in the case of convenience goods; the assumption is made that a convenience KOB is subject to the same influences irrespective of its elasticity/bulk status. The lower right hand corner contains those comparison trades which (like gent's outfitters) sell goods which are luxury in character but low in bulk.The upper right hand corner represents comparison trades which are either essential or bulky in character. Groceries have been placed in the middle of the shopping effort dimension by virtue of the dual status of these goods as both convenience and shopping goods (see earlier), it is considered that these shops may be subject to two sets of conflicting influences and exhibit similarly schizophrenic location characteristics. Shoe shops have been placed in the centre of the top elevation, since they are considered to occupy a mid-range position on both dimensions. Shoes are not frequently purchased but the large degree of horizontal integration, to which this trade has

been subject, may have led to a largely homogeneous shopping environment for this good. Such a phenomenon would explain the typical location characteristics of shoe shops which, while not being as dispersed as shops in convenience trades, are not as centralised as many shops selling comparison goods (unlike the gent's outfitters shops studied shoe shops occur in large numbers in district and small town centres as well as city centres). Although shoe purchases are not bulky it is clear that a proportion of purchases may be classed as essential and this may constitute an alternative, though less plausible, explanation for the observed location characteristics of these shops.

The marketing variables associated with convenience and non-bulky/luxury comparison goods are displayed on the front elevation of the cube; they are those found empirically to be associated with greengrocers and gent's fashion outfitters. The influences associated with bulky/necessary comparison goods by contrast are based mainly on guesswork as to likely effects. This qualification should be taken into account in attempting to apply the untested model in its present form.

8.7 Inputs and Outputs of the Model

Although the foregoing account of the model has detailed the processes involved in its use, it is proposed to set out a detailed description of the inputs and outputs involved. The data required by the model is as follows:

a) An identifiable specialist retail KOB selling a sufficiently narrow range of goods to facilitate an unambiguous classification along the main dimensions.

b) Data on elasticity of demand.

c) Data on bulk characteristics.

d) Data on frequency of purchase.

e) Data on variability of the marketing influences which are noted as potentially important in the model (according to the type of comparison good for which the goods sold by the KOB in question are a candidate).

Where these pieces of information may be subject to uncertainty (which seems likely), additional data on location characteristics of the KOB should be used as a validatory cross-checking mechanism.

The information provided by the model is as follows:

a) Location characteristics likely to be associated with this KOB.

b) Principal marketing variables influencing this trade.

c) The relative power of the variables to affect shop performance.

d) The nature of the interaction between location and other variables (i.e. whether this is additive or multiplicative in nature), if this can be determined.

8.8 The Use and Value of the Model

A model of the type outlined above may be of value to a number of different parties with an interest in retail issues, these include existing or potential retail operators especially small businesses, planners, academics and other research interests:

a) Retail Operators - Even as it presently stands the model may have some utility to the retail operator. Potential locations can be evaluated from the point of view of their likely suitability in general terms and their particular performance in terms of specific variables connected with location, such as pedestrian traffic or car ownership within the vicinity. Other variables can be identified and given an appropriate priority according to their power to affect performance. Detailed consideration has been given to this issue from the point of view of retailers in the KOBs studied in an earlier chapter.

b) Planners - A major issue in planning in recent years has concerned whether or not permission should be given for the establishment of out-of-town shopping centres such as have become commonplace in the USA (see chapter 2). In general, planners have resisted such centres on the grounds that these would damage existing shopping centres which represent considerable investment in terms of supportive infrastructure. In the main part new shopping centre

development has been restricted to freestanding single shop developments and some small centres based mainly around supermarket retailing. The model would indicate that for many comparison goods such centres will never become important and therefore a threat to existing large retail centres. If large out-of-town shopping centres were to be subject to unrestricted development they may reach a size such that this would no longer be the case. The model may have some value in terms of the contribution it may make to this debate.

c) Academic and Research Interests - Those whose interests in retailing are mainly concerned with information provision might benefit from the model in three ways:

i) Utilising the model as it stands - The model has some value as a basis for explanation and prediction of past and future trends in retailing. In trades for which floorspace is a salient influence in determining sales, it is probable that this has been a contributory factor to increases in shop size. Where such increases have not already occurred it is likely that they will do so in future. Similar considerations may apply where price is important and operators are able to take advantage of economies of scale in large organisations and large units.

ii) Improving and Refining the Model - An investigator may utilise the model as a framework within which to

develop further theory by using it to determine which major influences need to be subject to control when investigating the influence of a subsidiary variable. For example, in assessing the impact of local advertising on butchers shops the model alerts the experimenter to the fact that measurements would be subject to error if road improvements had interfered with pedestrian traffic flows during the study period. This application avoids the need for sophisiticated methods of control which are, in any case, usually impractical in retailing research. Such results might be used to improve or refine the model.

iii) Testing the Model - Of principal importance, because it involves testing rather than making assumptions, is the potential role of the model as a framework for hypothesis generation. An investigator could use the model to set up hypotheses about a given type of retailer based on the predictions of the model.

8.9 Conclusion

The traditional theory of product class offers a sensible means to categorise the two KOBs studied and would appear to offer a system by which the conclusions about greengroceries and gent's fashion may be generalised. Such a model is not applicable to all types of specialised retailing. A detailed consideration of other

types of retailing suggests that an additional dimension (or dimensions) based on bulk characteristics and elasticity of demand would be needed to produce a viable model of retailing in general. This could be used to predict the main marketing influences on the trade of a given specialist KOB.

Although largely speculative, the model proposed has considerable theoretical support and may be of value, even in its present form, to the retailer and the planner. It is proposed that the main value of the model is in the role that it may play in providing a framework within which future research in this field may be profitably pursued.

Notes

1) This approach which assumes discrete dichotomous categories is adopted in order to simplify the explanation. More logically it might be assumed that convenience and comparison goods lie at the extremes of a continuum.

2) Traditionally, product class has been applied to individual consumer attitudes to individual products. Here it is applied to aggregate behaviour to a group of products typically sold in "specialist" trades..

CHAPTER 9 CONCLUSIONS AND RECOMMENDATIONS

Summary

9.0 The chapter examines the extent to which the objectives of the study have been achieved. A number of recommendations are made; these are directed towards individual retail operators within the KOBs studied, public policy-makers and research investigators working in the field of retail marketing.

9.1 The investigation has been largely successful in meeting its objective of providing information which may assist the small retailer in determining priorities in making decisions about pricing, product range, location and promotion. The models that have been evolved are not sufficiently precise to permit cost-benefit analysis of potential marketing strategies. The study has permitted tentative theoretical development in the form of a general theory of marketing mix effectiveness in retailing.

9.2 It is suggested that the results of the study should be disseminated as widely as possible especially to retailers themselves, to consultants and others who act in an advisory capacity in this field. Small retailers in greengrocery and gent's fashion retailing should have regard to the respective model in determining their priorities.

Small greengrocers should oppose alterations in the law to allow the introduction of of irradiated produce as the extended shelf life of products this might make possible would undermine their main defence against the encroachment of multiple retailers into this market. Small gent's fashion outfitters should investigate the possibilities of collaboration in order to take advantage of the power of advertising indicated by the research.

A number of recommendations are made for additional research into the marketing mix. It is suggested that the precise nature of the effect of advertising and shelf display space on consumer perceptions of a shop should be investigated. Further research is also required in order to confirm the principal salient influences on the performance of shops selling essential and bulky comparison goods such as groceries, DIY and furniture.

9.0 Introduction

The purpose of the present chapter is to evaluate the results of the investigation in terms of the objectives set out at the beginning. To what extent have these been successfully achieved? If success has been less than total what is the value of the results in a substantive sense and what methodological lessons may be learnt? The first section of the chapter is concerned with these issues. Section two deals with the implications for future activity which flow out of the study, these form the basis of the author's recommendations regarding policy decisions by various entities and for the direction of future research.

9.1 Conclusions resulting from the Study

To a large extent the results of the study have already been thoroughly evaluated; this material is presented in Chapters 8 and 9. The present section reiterates these conclusions in summarised form.

The objectives of the study are set out in the introduction to the thesis they are as follows:

> Objective 1 - To obtain information as to the effect of marketing mix variables on the performance of small shops. Such information should be suitable for economical use by small shop operators in improving sales performance. A degree of quantitative precision would be desirable in

order to facilitate the application of cost benefit analysis to potential marketing strategies.

Objective 2 - That the study should contribute towards the development of a general theory of marketing mix effectiveness in retailing.

To what extent has the study achieved these objectives? Regarding the first objective the following claims may be made:

a) A model which describes the effect of marketing mix variables upon performance has been identified for both greengrocers and gent's outfitters. In each case the model concerned has been demonstrated to be both theoretically plausible and predictively valid within certain limits.

b) In both cases there is strong evidence that the measure of performance used (mean customers) is strongly linked to sales, this is particularly well-established in the case of greengrocers where the directness of the link is beyond any reasonable doubt.

c) The model enables a practitioner within either KOB to identify where his or her priorities lie in terms of which marketing variables have potentially the largest effect on performance. In the case of greengrocers these are pedestrian traffic, shelf display space and interior attractiveness. These factors may be manipulated independently of each other to good effect. In the case of gent's outfitters the main influences are centrality to

other shopping, advertising, shelf display space and shop size, the variables are interdependent in the sense that poor results are achieved by increasing advertising display space and shop size unless the shop is situated centrally to other shopping.

It would appear that the investigation has produced information which may be used by small shop operators in the interests of improving performance. The objective of sufficient quantitative precision to permit cost-benefit analysis has not been achieved. The analysis of precision, presented in Chapter 8, clearly indicates that the respective ranges within which values are predicted to lie (with 95% probability) are too large to permit such an accurate evaluation, especially where the value of the increase is required to be stated in absolute rather than percentage terms.

In terms of general theoretical development the objectives of the study appear to have been fulfilled and even perhaps surpassed. In the first place, the successful execution of the innovative study design has established that randomised observational studies of marketing mix variables are a viable proposition. Since such studies are not subject to constraints on publication of findings it seems possible that its use may lead to an increase in the proportion of research in this field which enters the public domain. Secondly, the results for the individual KOBs have been shown to have important implications for the re-interpretation of past events and predictions of likely future developments within these types of retailing. An

example of this is the conclusion that the success of greengrocers in retaining a large market share in the face of multiple expansion, is largely due to the frequency with which these goods are habitually purchased. For the future it is possible to predict that independent greengrocers will continue to command a large market share unless new innovations are introduced to reduce the perishability of this product. Chilling and irradiation may represent such developments.

In the wider sphere some attempt has been made to demonstrate the potential impact of the results. Chapter 8 outlines a general theory of marketing mix effectiveness, covering all types of retailing, which is based on the empirical findings of the present study. This framework utilises dimensions of frequency of purchase, homogeneity of the shopping environment, elasticity of demand and the physical bulk of a product in order to predict the salience of various marketing mix influences for a given type of shop. This model is largely hypothetical.

It may be concluded that the study has been highly, though by no means totally, successful in achieving the objectives which have been set. The following section deals with the recommendations which the author wishes to make as a result of what has been discovered.

9.2 Recommendations Arising from the Findings

Recommendations arising from a set of results take the form of policies which the investigator feels ought to be implemented

by a particular organisation or entity. They may also represent ideas for extending the research or correcting any defects.

In terms of policy a number of recommendations have already been directed towards individual firms during the course of this thesis. It seems, therefore, that some effort should be made to disseminate these results, both to the retailers concerned and to other bodies both public and commercial who habitually act as consultants to small retailers.

As a general policy recommendation it is suggested that independent greengrocers should expend as much effort as possible both individually and collectively in attempting to resist a change in the present law prohibiting irradiation of food, failing that, every effort should be made to influence public opinion about such food (which seems likely will compulsorily labelled) in a negative fashion. For gent's outfitters the main threat to the independent would appear to come from advertising since the research indicates that when this is used properly it may constitute a very powerful means of attracting trade. Multiples may expend large resources on advertising since the costs may be spread over a large number of outlets, this clearly puts the independent at a disadvantage. Although it is not possible for the single shop operator to expend the large sums required to carry out an advertising campaign (these often run into hundreds of thousands of pounds) it would seem possible that independent fashion shops might collectively do so, perhaps this might stress the virtues of such shops in terms of flexibility, variety and lack of standardisation of products. A collective strategy of this type might have a positive impact on consumer

attitudes towards such shops.

The investigation points to a large number of areas in which further research is needed. As far as the individual models are concerned, more information is required as to the manner in which advertising and shelf display space affect consumer attitudes and behaviour. In view of the tenuous nature of knowledge in this matter appropriate research might attempt to tap consumer attitudes in order to uncover causal links and to suggest possible ways in which these concepts might be redefined or subdivided in future studies of the type described in this thesis. Additional research into the validity of (mean) customers as an indicator of sales turnover would also be desirable.

Much research might also be carried out in connection with the tentative general model which has been outlined in detail in Chapter 9. In particular it would appear desirable to put to the test the hypothesis that the principle influences of trade in non-luxury or bulky comparison goods (such as is provided by grocery supermarkets, DIY and furniture superstores) is determined principally by price and access for private cars.

9.3 Conclusion

The present chapter has outlined the significance of the study in terms of the original objectives and the prescriptions for action which flow from the information obtained. It is quite clear that in both senses the study has enjoyed remarkable success; to a large extent the aims of the study have been achieved while it is possible to make a number of recommendations

of significance both to retail operators and research investigators working in the field.

APPENDIX A GLOSSARY OF TERMS

CAR-OWNERSHIP - Effective control of a private car or light commercial vehicle This definition includes both legal ownership and the fairly common de facto ownership enjoyed by employees with "company cars".

CORRELATION - Correlation or association, as it is sometimes known, is a measure of the linear relationship between two sets of measurements relating to different attributes of the same set of entities. Measurements representing the height and weight of a number of people might indicate that as height increases weight tends to increase as well, if this were the case the two sets of measurements (or variables) could be described as exhibiting correlation. The most common way to quantify this relationship is by means of the "Pearson correlation coefficient" which takes values between -1 and +1 these extremes indicate a high degree of positive or negative association, while a value of zero indicates no association at all.

DISTRIBUTION CHANNEL - A network of organisations or entities which are instrumental in conducting goods and services (both physically and by ownership) from the producer to the final consumer. Industrial channels are those in which the product is subject to further processing (or is used in producing something else) on reaching the end of the channel. Consumer channels are those which terminate with the final consumer, retailers constitute the penultimate link in this chain.

EMPIRICAL WORK - Empirical work is concerned with the relationships to be found within data about the real world.

INDEPENDENT - The smaller type of retail organisation. The most commonly used definition is that independents are those operators having less thsan 10 shops under their control. By this definition around 80% of retail operators are independent

INDICATOR - An indicator is a measurable variable which is assumed to be highly associated with another more conceptually valid variable; the latter being either unmeasurable or very difficult to measure accurately. KIND OF BUSINESS (KOB) - A categorisation system used by the Distribution Industry Training Board (DITB) and Central Statistical Office (CSO) which distiguishes between retail shops on the basis of the main products which it sells. Typical examples are greengrocers, fishmongers and poulterers, boot and shoe shops, butchers and dairymen. Categories mainly comprise traditional trades specialising in products of similar physical (i.e butchers) or demand (i.e. confectionery-tobacco-news) characteristics and for these reasons have a continuing history as self-contained types of retailing. The growth of mixed retailing has tended to erode the utility of the KOB classification to some extent. In the study presented here specialiost KOBs have been deliberately identified and selected for investigation, the definitions imposed are somewhat narrower than those used by the DITB and CSO.

MARKETING MIX - Marketing consists of identifying and satisfying

consumer needs and desires. Marketing research deals with identification while the marketing mix is the means of providing satisfaction. The four so-called elements of the marketing mix are promotion, location, product and price. A supplier appeals to the consumer by judicious use of a marketing strategy which is determined by selecting what appear to be the best alternatives among many for promoting locating, pricing what appears to him to be a suitable product or product mix. Although marketing is applied at all levels of a marketing channel, and may be directed either at the next channel member or at the final consumer. This thesis is concerned only with those choices available to the retialer, that is choice of a suitable product mix from the entire range available, choice of a suitable site, choice of his means of promotion (this includes the design of premises) and his policy on pricing.

METHODOLOGY - Methodology is the study of research methods. In this thesis methodological issues are invoked in determining the appropriate study design for the investigation of marketing mix variables. Aspects to be resolved are the choice of; research design, conceptual framework, hypotheses, population and sample, data collection and data analysis methods.

OPERATIONAL DEFINITION - Definition of a variable in terms of the process of by which its value is obtained.

PRODUCT CLASS - A method of classifying goods on the basis of the shopping effort expended by individual customers. Where effort is

low the class is that of a convenience good, where it is high it is a comparison or shopping good. A further class is that of specialty good, where a customer makes a special effort to obtain a particular brand. The classification was first detailed by the American Marketing Association in 1948.

RETAIL FLOORSPACE - The physical area occupied by a shop or group of shops. Precise definitions are similar to those set out by the Unit for Retail Planning Information (URPI) and relate to "gross" and "trading" floorspace. Gross floorspce is the total enclosed area of the shop. Trading floorspace is the floor area actually used for selling goods it excludes stockrooms, offices, staircases and lavatories, it includes window display space and counter space. In the empirical work floorspace also included exterior space where this was used for the display of goods.

RESEARCH SPECIFICATION - Detailed description of the objectives of and methods used in a programme of research.

MIXED MERCHANDISING - Offering a wide range of products not linked by similarity of function or retail tradition. Also known as "scrambled" merchandising.

MULTIPLE - Larger type of chain organisation in retailing. The most common definition is that multiples are organisations operating 10 or more outlets, excluding department stores and co-ops. Where possible this definition has been broadened to include Co-ops and department stores.

MULTIPLE REGRESSION ANALYSIS (MRA) - Linear multiple regression analysis is a complex statistical technique which enables the combined effect of a number of "independent variables" on a single "dependent variable" to be evaluted. The technique is "quasi-experimental" in the sense that interrelations between variables in equations are taken into account in the model building process. The effect of a given variable is evaluated in terms of its power to add to the explanation afforded by other variables in the analysis. Output takes the form of a simple equation and a number of statistics relating to its precision and ability to "explain" variance in the dependent variable.

MODEL - A model is an internally consistent set of relationships which are held to represent some aspect of reality" (DITB 1976). In the present thesis models are used to represent assumed and hypothetical conceptual relationships. Equations derived from multiple regression analysis are also described as models since they represent the relationship between marketing mix variables and consumer behaviour.

RETAILING - Selling by way of business to the final consumer of a product, usually in small quantities. Retailed products are not subsequently sold on or incorporated into a production process without first being subject to some degree of consumption.

SMALL SHOP - Shop size has traditionally been defined in a number of ways, these have mainly been selected on the basis that statistics may be easily obtained, rather at the expense of logic

or consistency. A fairly flexible approach is taken in the thesis concerning the issue of size, this may be justified on the basis that there is a high correlation between all measures of size; the smallest shops in terms of turnover also tend to be the smallest in terms of employment and in terms of physical size (see introduction for some supporting statistics). The smallest shops also tend to be operated by small organisations. In the empirical work small shops are defined as those with less than 1,000 square feet of trading floorspace.

THEORETICAL WORK - Theoretical work focuses on relationships which are one step removed from empirical data. Such models are deduced or inferred. Because these type of relationship are by definition not readily observable they are usually subject to *some degree of* uncertainty.

SELF-SERVICE - A retail sales technique in which customers examine, select and collect their purchases from shelves, racks or even packing cases without the intervention of any retail employee prior to making payment. A variation is self-selection which involves unassisted examination of goods, order picking and assembly is then carried out by an assistant.

STATISTICAL SIGNIFICANCE - A measure of the confidence with which an observed effect in a randomly selected sample may be assumed not to be the result of sampling error but to reflect an effect within the population itself.

VARIANCE - Variance is a measure of the variability present in a

set of data. Where a set of measures all take similar values variance is small, where they are distributed evenly over a large range variance is correspondingly large. In precise terms variance is the sum of the squared deviations from the mean for a set of values. "Explained variance" is the proportion by which variance is reduced if instead of using the mean to calculate variance a formula such as that derived using multiple regression analysis is used.

VARIABLE - A single aspect of empirical reality which may be represented by a number of values relating to different entities.

APPENDIX B THE PILOT STUDY

B.0 Introduction

This appendix briefly describes the pilot phase of the investigation. This has received extensive mention in the main body of the text. The objectives of the pilot work are set out followed by a description of the study specification. The results achieved are then outlined and a number of conclusions drawn, these relate mainly to the implications for the design of the main phase of study described in Chapter 5.

B.1 Objectives

1. To test the viability of using simple observation to gather data on retail marketing mix.

2. To refine the operational definitions of the marketing mix variables used.

3. To develop and refine procedures and skills for both data collection, data entry and verification and data analysis.

4. To gather evidence as to the validity of the indicator for the independent variable.

5. To obtain information on substantive relationships between variables in order both that more specific hypotheses may be formulated and in order to reduce or increase variables

representing related concepts where these are found to be inadequate, duplicated or trivial in nature.

6. To obtain a database suitable for testing the predictive validity of any models of marketing method effectivenesss that are developed in later phases of the study

It may be seen that many of the objectives of the study are procedural rather than substantive in nature. The main purpose of the study is to facilitate an examination of the proposed methods; these being largely pioneering in nature. It is hoped that any serious error come to light at this stage.

B.3 The Study Specification

The pilot study takes the form of a field survey of existing variability using a cross-sectional (snapshot) timescale. A number of variables representing aspects of the shop marketing mix were measured by direct observation on site. These variables are listed in Table B.1. Although this list does not include all possible variables the selection does embrace most of the key concepts which have been identified in Chapter 3 as likely to have a major effect on shop sales. Exceptions to this are shop hours (which was eliminated on the basis that since the performance measures were sampled only over limited periods it could not constitute a causal factor), and quality owing to the difficulty and cost of assessment. The intention is that the list of variables to measured could be expanded and contracted according to which variables are

empirically determined either to offer the most promise in explaining performance or which appear to be the subject of overmeasurement. Shop performance is represented in terms of the mean number of customers in the shop (at any one time), this being assumed to be a valid indicator of shop turnover. In order to test this assumption average sales per minute were also measured.

The populations are limited to shops within approximately 3 miles of the investigators headquarters at the Aston University in Birmingham city centre. Initially greengrocers shops were selected. These are unusual among the food trades as a particularly large share of trade (around 60%) is held by independent retailers. The shops tend to be small in size (all shops in the sample operated with under 1,000 sq.ft. trading floorspace) and are sufficiently numerous to enable a suitable number of shops to be identified. Subsequently gent's fashion outfitters were selected, these too are fairly numerous within the study area. A large proportion (though by no means all) of these shops are quite small. The main reason for selecting gent's outfitters is their obvious contrast to greengrocers, being non-food luxury comparison goods. The latter dimension in particular was considered important owing to the likelihood that the importance of pedestrian traffic to the determination of the trade of greengrocery shops is due to its status as a convenience good.

The area being studied was divided into squares of approximately 1 mile across and these were selected at random. These areas were then visted and all suitable shops were identified. This process was repeated until a sample of

approximately 25 had been compiled. In fact 25 greengrocers and 29 gent's outfitters are included in the study.

Operational definitions of variables are largely the same as those used in the main phase of study. There are some important exceptions to this however. For many items the definitions are dependent on the KOB. For greengrocers customers and takings were monitored on 5 occasions each. Pedestrian traffic was measured on a single occasion only for each shop. Price was monitored for 2 different baskets of vegetables. For the first, which contained staple items such as potatoes and tomatoes, measurements were made at the bottom, the top and the median point of the range, in addition to that for a standard variety. For the second basket, which contained more exotic types such as courgettes and grapes, only the median price was measured. In most cases these items were available at a single price. Depth of choice was measured for apples only. The total number of alternative choices was the sum of such choices over all ten items (the contents of both baskets combined).

For gent's fashion outfitters, the number of customers in a shop was measured on 22 separate occasions, takings on four occasions per shop. Pedestrian traffic was measured on two occasions per shop Choice and price were determined for denim jeans, canvas jeans, sweatshirts and jumpers. Standard price and brands were monitored for denim jeans.

Data was collected during November 1983 for greengrocers, that for gent's outfitters during February 1984. Analysis was carried out using SPSS on the Aston University Harris 500 computer.

The principle techniques used were scattergram analysis, Pearson correlation and multiple linear regression (MRA).

B.3 Results of the Analysis

In pursuit of the objectives of the study, the analysis was first directed to the examination of reliability and validity of variables where these were considered to be in doubt. This applies particularly to variables which were subject to time-sampling, and to the relationship between takings and mean customers in the shop. In most cases measurements are not in doubt since the required information was simply observed on site without any possibility for the intervention of errors from any source other than the observer. Subsequently attention is paid to the relationship between the dependent and independent variables in order to determine which variables are important and therefore represent suitable subjects for refinement and multiplication of measurement and those which are not important and for which measurements may be reduced. The two KOBs are treated separately.

B.3.1 Greengrocers

In order to test the assumption that the time-sampled measures of customers are representative of the situation over the entire working week, the average of measures taken on a saturday were compared with that for those taken during the week. The Pearson correlation coefficient for the two sets of measures is 0.69 (r squared 0.48). Although by no means negligible this degree of

association is not high enough to constitute evidence of a reliable measuring instrument. In spite of the fact that aggregating all the measures would improve matters to some extent as random variations tend to self-cancel in such circumstances, it is considered by the investigator that the situation is unsatisfactory and that the variable has been not been measured with sufficent thoroughness.

The relationship between the number of customers in the shop and takings over a limited period was examined in order to validate the former as an indicator of sales turnover. The five separate measures of each were respectively aggregated and compared. The Pearson correlation coefficient was calculated to be 0.88 (r squared 0.76), this indicates that over three quarters of the variance in takings is explained by the number of customers in the shop. This is a most satisfactory result which suggests that sales turnover is highly dependent on mean customers and that the latter is a useful way to assess sales performance.

The next stage in the analysis is an examination of the relationships between mean customers and the marketing mix variables which are thought to determine it. The most powerful and plausible equation which it was possible to derive using multiple regression analysis was as follows:

CUS = 0.11PED + 0.04SELFS - 0.04SPTIC + 1.61

(.57) (.52) (.31) (beta weight)

where:

CUS = The mean number of customers in the shop at any time.

PED = The mean number of pedestrians per minute passing

within 20 feet of the shop.

SELFS = The percentage of stock which customers could select for themselves.

SPTIC = The percentage of items not carrying price tickets.

The relative strength of the variables in affecting CUS is given by the beta weights.

The combination of independent variables accounts for 73% of the variance in CUS. This equation forms the basis of an hypothesis to be tested in the main phase of study.

Stepwise multiple regression analysis permits the investigator to examine the contribution to explanation that any given independent variable might make to the analysis if it were entered at the next iterative step. It is often the case that a number of variables which potentially make similar contributions are themselves highly correlated so that a variable which at a given step has much to offer may not subsequently enter the model at all. Partial correlations for all independent variables not in the equation at steps two and three of the MRA are presented in Table B.2 together with Pearson correlations prior to step 1. A strong association at any stage (approaching .1) indicates that a variable may have a strong causal influence on shop sales. A number of conclusions may drawn from this table. Most of the variables which represent aspects of location appear to be very important according to the figures obtained. In addition range, attractiveness, price ticketing, branch numbers, and self-service appear to be influential. These variables would appear to be

suitable candidates for more intensive measurement, pedestrain traffic for instance ought to be measured during more than one time period. In addition it would appear to be sensible to subject the attendant concepts, with which such variables are associated, to a more rigorous measurement process by allowing them to be represented by a larger number of variables.

Several variables have negligible association with the independent variable at all stages. These include; friendliness of staff, presence of nameboard, presence of goods outside, and display frontage, it is proposed to exclude these from further analysis. In addition the entire set of measures of price and choice also demonstrate a negligible capacity to influence trade. While it would not be sensible to exclude these variables entirely owing to their theoretical importance it is proposed that the number of variables be reduced while simultaneously increasing the rigour of the measurement process by including a wider range of goods in the measurement process.

B.3.2 Gent's Outfitters Shops

In order to test the assumption that the time-sampled measures of customers are representative of the situation over the entire working week, the 22 measures were assigned at random to one of two groups of 11 and totals were calculated. The Pearson correlation between the two sets of measures is 0.92 (r squared 0.86) this figure indicates that a high degree of reliability attaches to measurements of CUS and that the relative pattern of values obtained for a given set of measures is repeated for a second

measurement exercise. The two sets of measures of pedestrian traffic were subjected to a similar test. A Pearson correlation coefficient of .93 was obtained; once again this a most satisfactory result.

The relationship between the number of customers in the shop and takings over a limited period was examined in order to validate the former as an indicator of sales turnover. The degree of association between the respective totalled measurements for each shop was determined. The Pearson correlation coefficient was .92 (r squared = .86) indicating that a mere 14% of the variability in takings is unaccounted for by the mean number of customers in the shop. This is a most satisfactory result which suggests that sales turnover is highly dependent on mean customers and that the latter is a useful way to assess sales performance.

The next stage in the analysis is an examination of relationships between mean customers and marketing mix variables. It was not possible to derive a satisfactory regression equation from the data. Examination of the correlation coefficients given in Table B.3 shows that a number of variables are in close contention for entry at each stage of MRA. This indicates that a number of parallel equations might be derived. In view of the relatively large number of variables compared to the number of cases it was considered advisable to suspend judgement on the most suitable model until a larger sample had been examined.

Stepwise multiple regression analysis permits the investigator to examine the contribution that any given variable might make to the analysis if it were entered at the next

iteration. it is often the case that a number of variables which potentially make similar contributions are themselves highly correlated so that a variable which at a given step has much to offer may not subsequently enter the model at all. A sample analysis was carried out in order to facilitate such an examination. SELFS and MIND were entered at steps 1 and 2 respectively. Examination of the association between the dependent variables and mean customers at each step is useful because a strong association at any stage indicates that a variable may be a powerful causal influence on shop performance.

Table B.3 lists partial correlation coefficents for each independent variable at stages two and three of such an analysis along with the Pearson Correlation coefficients prior to the initial step of the analysis. The most important variables are PED, UNITS, MIND, FRON, XOUT and XNAM, these variables are candidates for further and more rigorous measurement. With the exception of PED and VARD all location variables appear quite weak. This seems fairly strange in view of the tendency for these shops to cluster in town centres It is therefore proposed that the measurement of location be improved and extended in subsequent phases of study. Friendliness, time before approach, price ticketing, music and appearance appear to have negligible influence and are candidates for exclusion from further study. Choice and range are also apparently unimportant although clearly exclusion is out of the question in view of their theoretical importance in relation to comparison goods. With the exception of standard price all the price measures are negligible in effect. It is proposed that these

be rationalised to some extent while still being subjected to more rigorous measurement (ie over a greater range of products.

B.5 Conclusion

The results of the pilot study permit a number of conclusions to be drawn both concerning methodological and substantive issues. In the former case the approach has been evaluated in the field and found to be satisfactory in the sense that it has been shown to be feasible to collect data by a largely observational approach. Time-sampling of variables such as mean customers and pedestrian traffic have been shown to be highly reliable if subject to sufficiently intensive measurement while the assumption that mean customers is a valid indicator of sales performance has been validated to a high degree for both KOBS.

The study permits identification of those variables, and the theoretical concepts which they represent, which are most likely to be important causal influences on trade. It would appear advisable to subject such influences to the most rigorous measurement. A number of variables which are trivial in both a theoretical and empirical sense are candidates for elimination from future phases of study.

In a substantive sense Pedestrian traffic is indicated as being the principal influence on the trade of greengrocers, self-service and price ticketing also to be important in influencing the performance of these shops.

TABLE B.1 Variables Measured in the Pilot Study.

Variable	Abbrev	Greengrcrs.	Gents Oftrs.
Median price for basket 1 (staples)	B1MED	⊙	-
Low price for basket 1	B1LOW	⊙	⊙
High price for Basket 1	B1HIG	⊙	⊙
Mean price for Basket 1	B1MEA	⊙	⊙
Price for standard item	B1ST	⊙	⊙
Price for Basket 2 (luxury items)	B2	⊙	-
Maximum % saving on sample mean for item in Basket 1	SO1	⊙	⊙
Price range (B1HIG-B1LOW)	PRAN	⊙	⊙
Number of distinct lines in shop	LIN	⊙	⊙
% of specified items in stock	PCSTO	⊙	⊙
No of choices for specifed item	CHOY	⊙	⊙
Total choices for specified items	TCHOY	⊙	-
Whether quality choice is offered	QCHOY	⊙	-
Whether the shop deals in ethnic goods	SPEC	⊙	-
No of Brands for specified item	BRA	-	⊙
Pedestrian traffic past the shop	PED	⊙	⊙
Distance to city centre	DISTC	⊙	⊙
Number of other shops within 100yds.	NOTH	⊙	⊙
Number of competitors within 100yds	NSI	⊙	⊙
Number of markets within 100yds.	MARK	⊙	⊙
Number of supermarkets withn 100yds.	SUP	⊙	⊙
Number of supermarket competitors within 100yds.	SUPSI	⊙	-
Number of dept. and variety stores within 100 yds.	VARD	⊙	⊙
Whether the shop is in the city centre	COFC	⊙	-
Hierarchical rating of area within 100yds.	H1	-	⊙
Hierarchical rating of centre	H2	-	⊙
Age of building	BUILD	-	⊙
Trading floorspace of the shop	UNITS	⊙	⊙
Number of other branches	BNOS	⊙	⊙
Whether multiple operated	MIND	⊙	⊙
Shop frontage	FRON	⊙	⊙
Display frontage	DIS	⊙	⊙
Exterior attractiveness	XATT	⊙	-
Exterior lighting	XLI	⊙	-
Goods displayed outside the shop	XOUT	⊙	⊙
Interior attractiveness	IATT	⊙	⊙
Exterior name-board	XNAM	⊙	⊙
Interior lighting	ILI	⊙	⊙
Whether their is music	MUS	-	⊙
% of price ticketing	PRITIC	⊙	⊙
Individual pricing of goods	INDP	⊙	⊙
% of non-price ticketing	OTTIC	⊙	⊙
% specified items not price ticketed	SPTIC	⊙	⊙
% self-selection	SELFS	⊙	⊙
Time till approached by assistant	APRO	⊙	⊙
Friendliness of staff	FR	⊙	⊙

TABLE B.2 Greengrocers: Association between Dependent and Independent Variables.

Variable	Pearson Corr with CUS	Partial Corr after PED	Partial Corr after PED & SELFS
B1MED	-.04	-.02	-.23 **
B1LOW	-0.03	-.07 *	-.17 **
B1HIG	-0.04	.03	-.24 **
B1MEA	-0.03	-.01	-.23 **
B1ST	-0.06 *	-.04	-.21 **
B2	0.06 *	.04	-.02
SO1	0.17 **	-.21 **	-.23 **
LIN	0.33 ***	.34 ***	-.04
PCSTO	0.36 ****	.24 *	.08 *
CHOY	0.02	.07 *	-.11 *
TCHOY	0.07 *	.23 **	-.06 *
QCHOY	0.23 **	.23 **	.03
SPEC	0.02	.03	-.07 *
PED	0.51 *****	-	-
DISTC	-0.54 *****	-.29 ***	-.14 *
NOTH	0.23 **	.09 *	-.14 *
NSI	0.31 ***	-.18 **	.14 *
MARK	-0.09 *	.44 ****	.21 **
SUP	-0.40 ****	-.25 **	.35 ***
SUPSI	-0.38 ****	-.23 **	.45 ****
VARD	0.32 ***	.10 **	-.05
COFC	0.61 ******	.39 ****	.26 ***
UNITS	0.09 *	.34 ***	.15 *
ENOS	0.52 *****	.58 ******	.34 ***
FRON	0.13 *	-.10 *	.12 *
DIS	0.15 *	-.08 *	.12 *
XATT	0.44 ****	.35 ***	-.02
XLI	0.53 *****	.43 ****	.08 *
XOUT	-0.06 *	-.19 **	-.17 **
IATT	0.56 ******	.48 *****	.15 *
XNAM	0.17 **	.12 *	.03
ILI	0.39 ****	.37 ****	-.04
PRITIC	0.44 ****	.31 ***	-.08
OTTIC	0.25 **	.08 *	.06
SPTIC	-0.52 *****	-.53 *****	.47 *****
SELFS	0.49 *****	.70 *******	-
FR	0.12 *	.05	.13 *

(* give visual indicator of strength of association)

Partial correlations indicate the relative contribution to explanation that a variable would make if it were entered at the subsequent step of multiple regression analysis.

TABLE B.3 Gent's Outfitters: Association between Dependent and Independent Variables.

Variable	Pearson Corr with CUS	Partial Corr after SELFS	Partial Corr after SELFS & MIND
B1LOW	.22 **	.19 **	.25 **
B1HIG	.24 **	.30 ***	.10 *
B1MEA	.26 ***	.28 ***	.19 **
B1ST	.25 **	.13 *	-.38 ****
PRAN	.10 *	.14 *	-.16 **
SO1	.08 *	.18 **	.20 **
LIN	.29 ***	.05	.10 *
CAT	.16 **	.20 **	-.07 *.
PCSTO	.25 ***	-.02	-.11 *
CHOY	.08 *	-.31 ***	-.08 *
ERA	.08 *	-.06 *	.09 *
PED	0.51 *****	.18 **	.06
DISTC	-.23 **	-.09 *	-.02
NOTH	-.13 *	-.12 *	-.06 *
NSI	.13 *	-.23 **	-.15 **
MARK	-.11 *	-.29 ***	.21 **
VARD	.20 **	.48 *****	.25
H1	.25 **	.19 **	.10 *
H2	.25 **	.06 *	.01
CSIZ	.25 **	.06 *	.01
FAN	.16 **	.32 ***	.14 *
BUILD	-.17 **	.19	.22 **
UNITS	.58 ******	.42 ****	.23 **
MIND	.46 *****	.58 ******	-
FRON	.21 **	.53 *****	.47 *****
XOUT	-.39 ****	-.02	.01
APP	.11 *	-.07 *	.04
XNAM	.46 *****	.06 *	.08 *
MUS	.25 ***	-.07 *	-.15 *
PRITIC	.07 *	.05 *	-.19 **
INDP	.21 *	.00	.32 **x
SPTIC	-.22 **	-.02	.12 *
APRO	-.1	.11x	-.25 **
SELFS	.60 ******	-	-
FR	-.02	-.04	-.28 *xx

(* give visual indicator of strength of association)

Partial correlations indicate the relative contribution to explanation that a variable would make if it were entered at the subsequent step of multiple regression analysis.

APPENDIX C The Geographical Disposition of Shops in the Main Phase of Study.

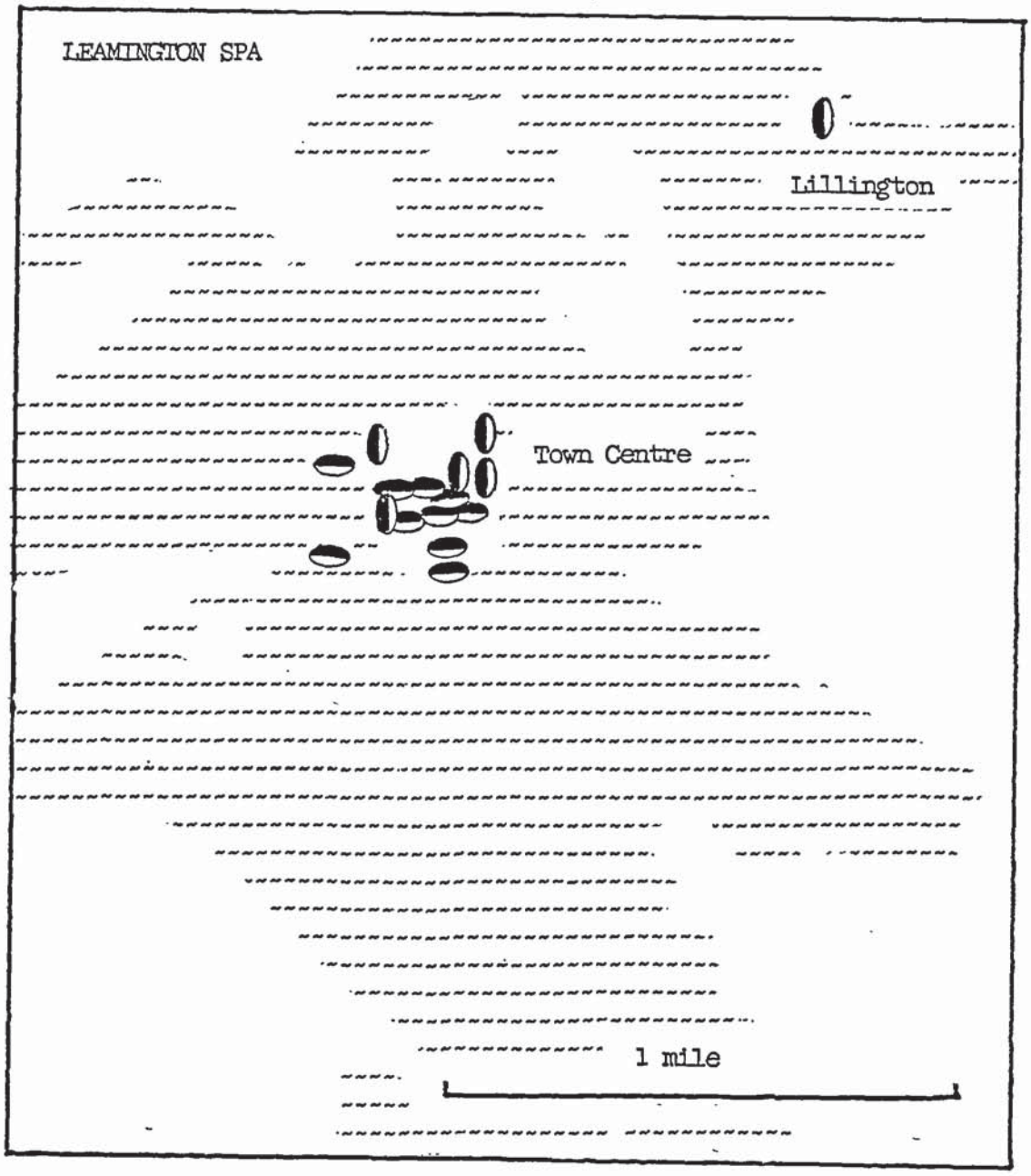
KEY

Greengrocers Shops

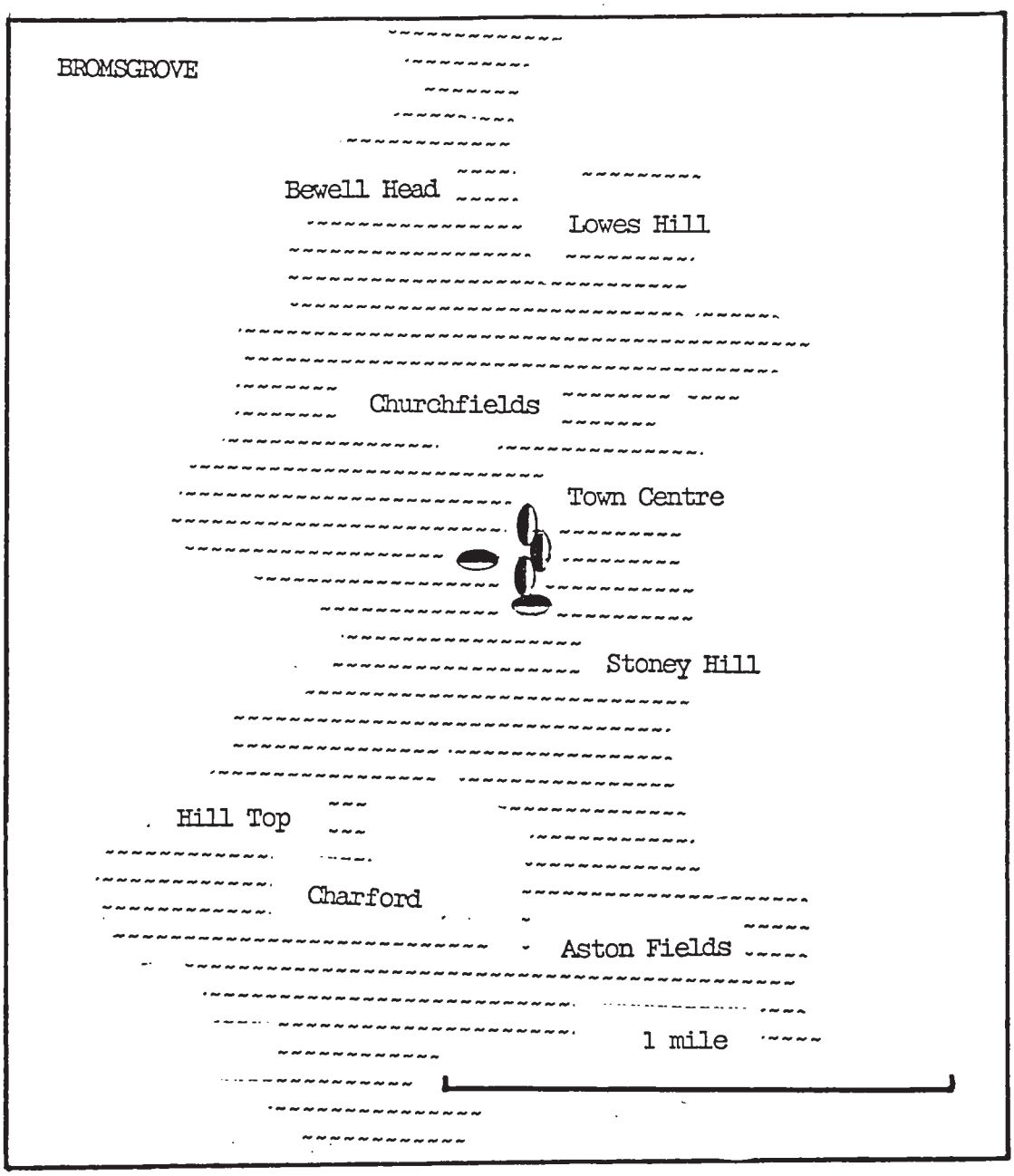
Gent's Fashion Outfitters Shops

Built-up Area

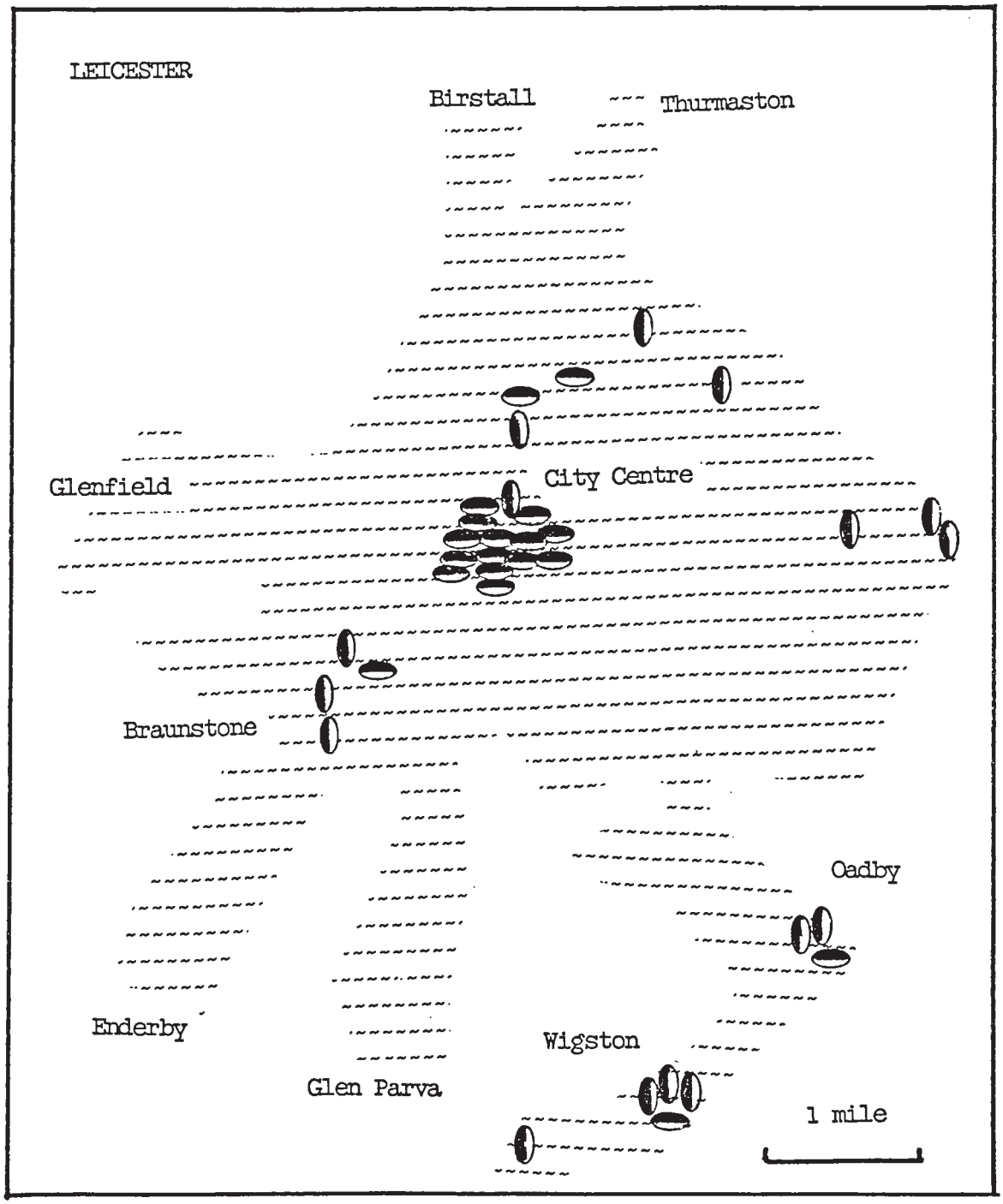
C.1 Leamington Spa



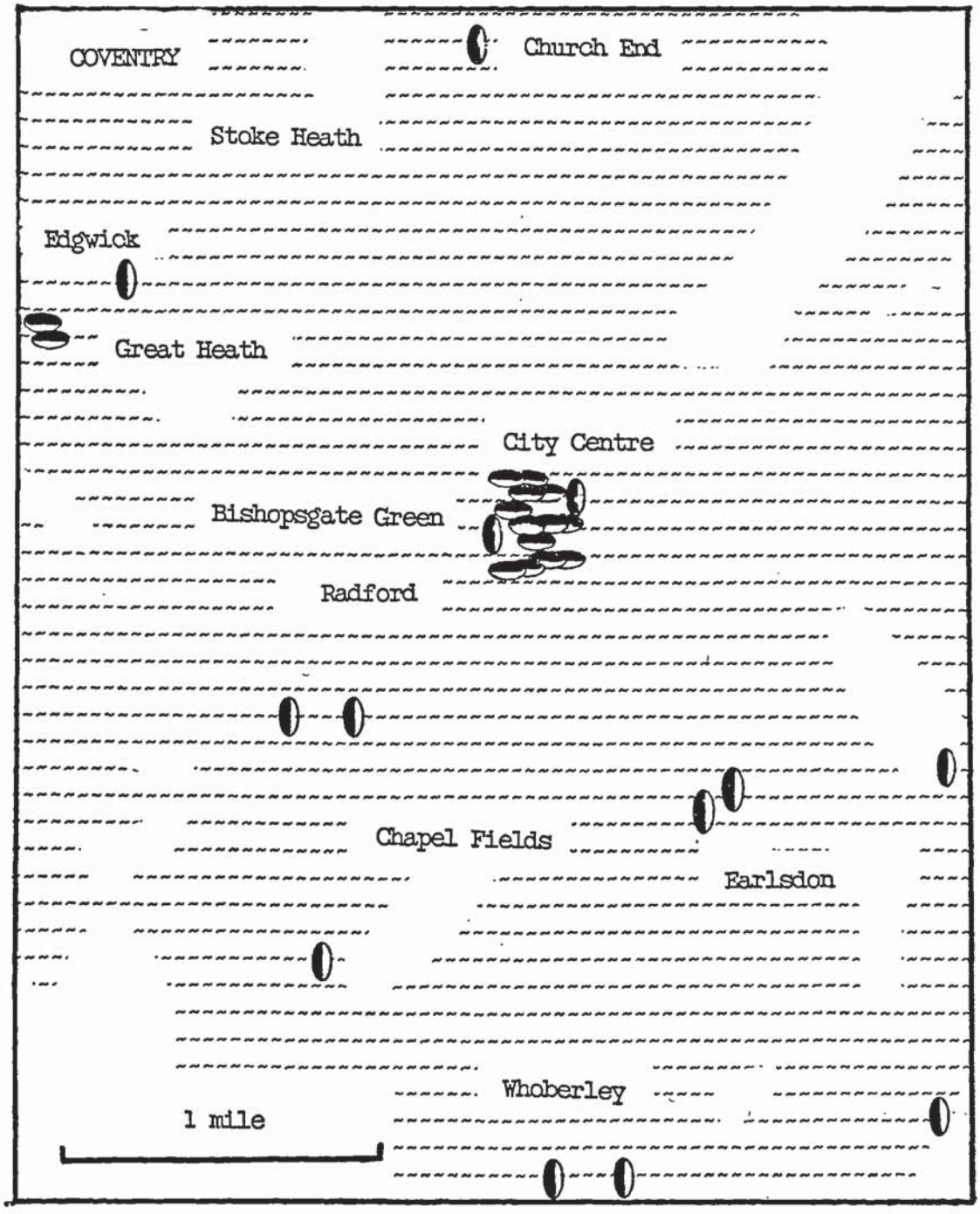
C.2 Bromsgrove



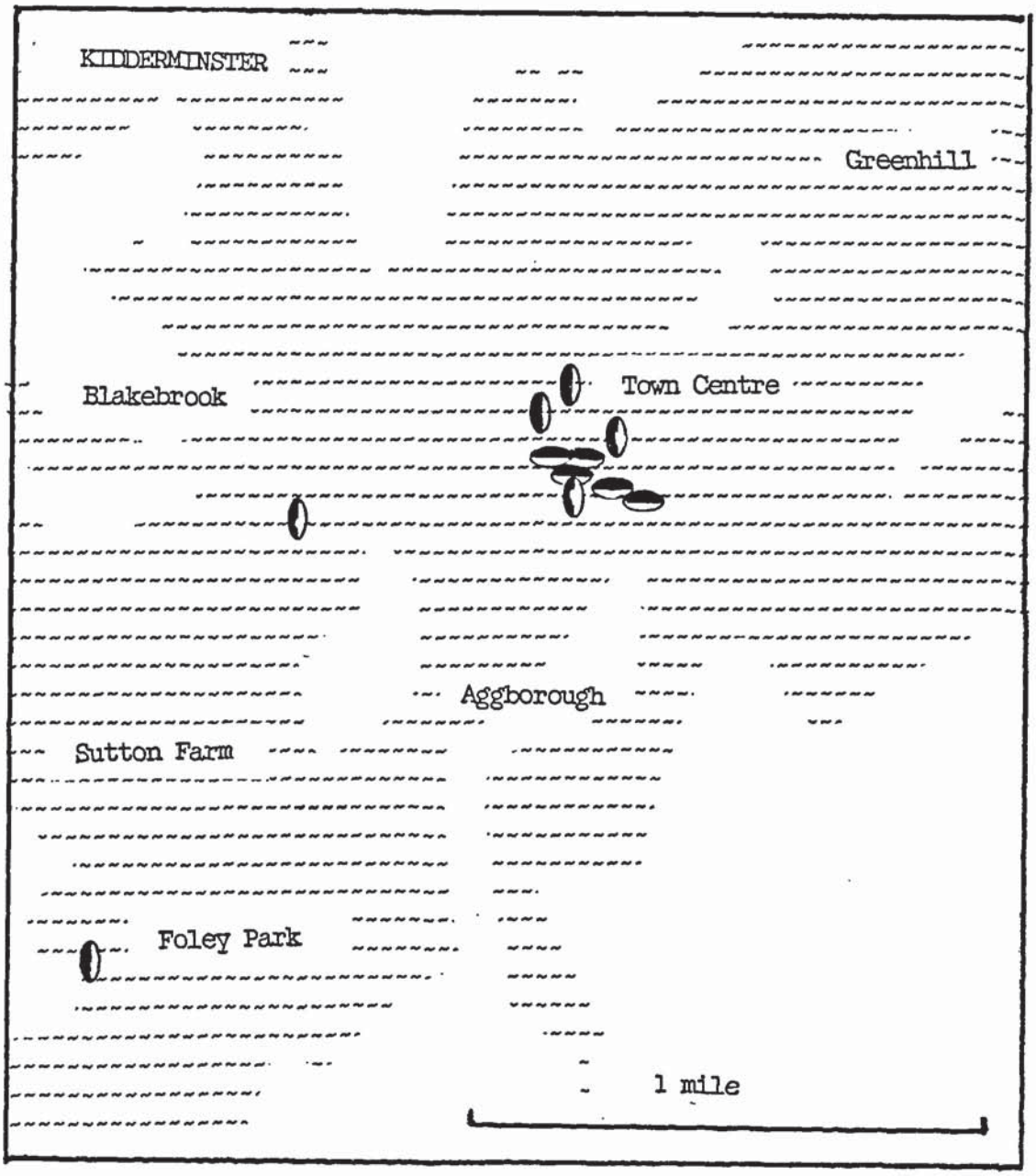
C.3 Leicester



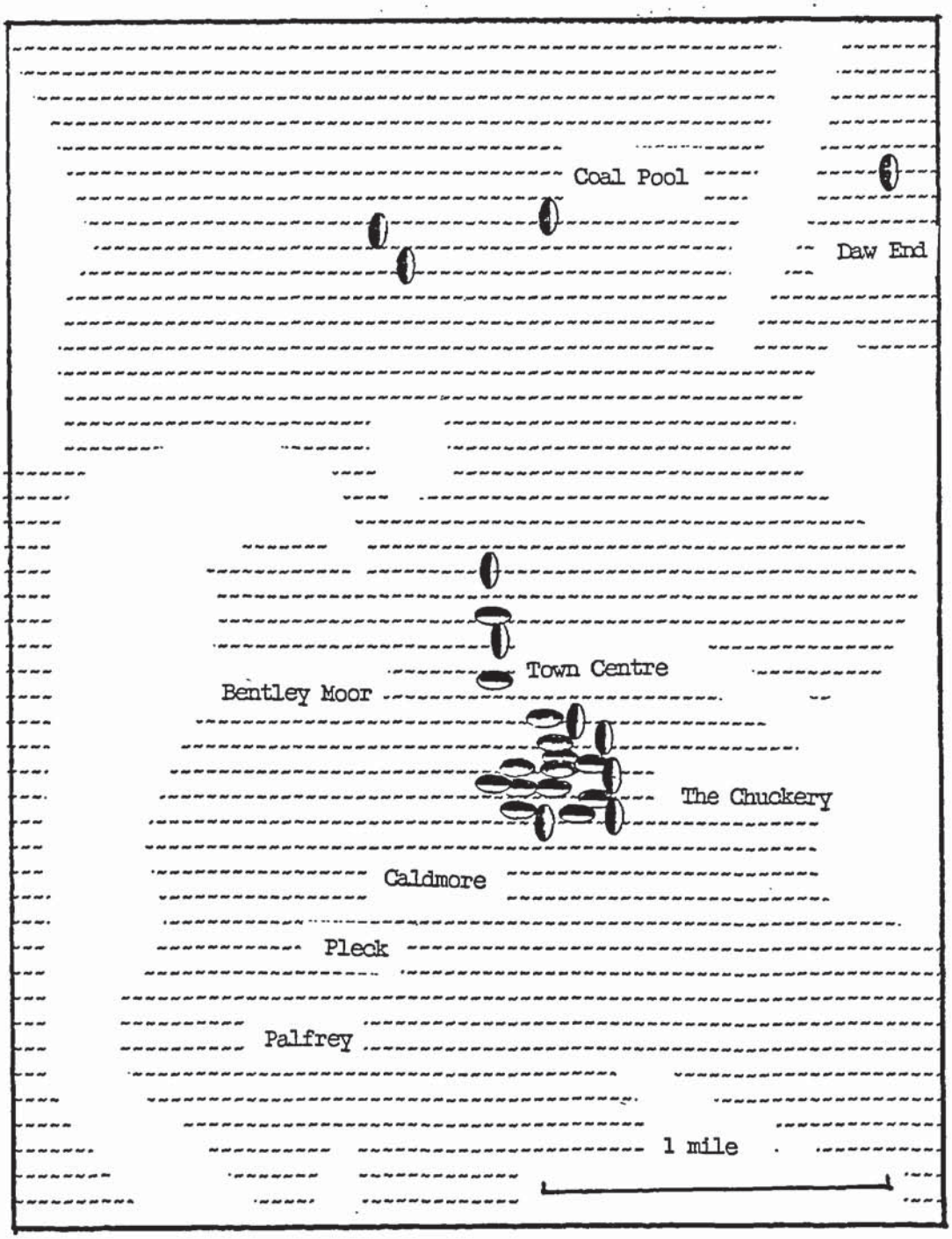
C.4 Coventry


COVENTRY
Church End
Stoke Heath
Edgwick
Great Heath
City Centre
Bishopsgate Green
Radford
Chapel Fields
Earlsdon
Whoberley
1 mile

C.5 Kidderminster



C.6 Walsall


Coal Pool
Daw End
Town Centre
Bentley Moor
The Chuckery
Caldmore
Pleck
Palfrey
1 mile

APPENDIX D Maximum, Minimum and Mean Values for Variables Measured in the Main Phase of Study.

D.1 For Greengrocers Shops

Variable Abbreviation	Minimum	Mean	Maximum
CUS	.2	3.4	12.1
TAK	0.0	7.5	33.0
CSIZ	1.0	8.9	32.0
FAN	0.0	2.1	5.0
NOTH	2.0	25.5	49.0
NSI	0.0	1.1	5.0
H1	1.0	2.9	4.0
PED	.8	10.5	55.2
POP	7.0	73.9	310.0
PPH	3.0	25.6	87.0
OHOM	31.0	60.9	81.0
OCAR	44.0	62.3	76.0
UNITS	120.0	445.0	900.0
SHEL	11.0	36.6	80.0
MIND	0.0	0.1	1.0
FRON	8.0	19.1	70.0
PTAG	40.0	87.6	100.0
SELF	0.0	45.5	100.0
SPTIC	0.0	6.4	40.0
WIND	1.0	3.1	4.0
XATT	1.0	2.0	3.0
IATT	1.0	2.2	3.0
XEQ	0.0	1.7	3.0
IEQ	0.0	2.0	3.0
LI	1.0	2.4	3.0
PCSTO	40.0	92.4	100.0
CAT	1.0	1.9	3.0
LIN	10.0	24.8	38.0
LINII	5.0	8.7	9.0
CHOY	0.5	1.0	1.6
CHOY2	1.0	1.8	4.0
CHOYX	1.1	3.3	6.7
HIPRI	0.7	1.0	1.2
LOPRI	0.7	1.0	1.4

Precise definitions of variables and units employed are given in Chapter 5.

D.2 For Gent's Fashion Outfitters Shops

Variable Abbreviation	Minimum	Mean	Maximum
CUS	.2	3.8	21.8
TAK	0.0	19.7	96.1
CSIZ	4.0	22.0	32.0
FAN	1.0	4.2	6.0
NOTH	4.0	42.9	79.0
NSI	0.0	11.3	13.0
H1	1.0	3.8	4.0
PED	1.3	27.1	75.0
POP	14.0	207.0	310.0
PPH	4.0	28.4	102.0
OHOM	35.0	57.5	80.0
OCAR	29.0	57.2	76.0
ADV	0.0	82.3	768.0
UNITS	180.0	1032.0	4300.0
SHEL	18.0	100.1	425.0
MIND	0.0	0.5	1.0
FRON	8.0	32.4	108.0
PTAG	10.0	91.6	100.0
IND	0.0	0.8	1.0
SELF	0.0	92.5	120.0
SELFS	1.0	2.4	3.4
WIND	1.0	2.2	4.0
SPTIC	0.0	5.2	100.0
XATT	1.0	3.0	2.4
IATT	1.0	2.3	3.0
XEQ	1.0	2.4	3.0
IEQ	1.0	2.4	3.0
LI	1.0	2.4	3.0
PCSTO	50.0	96.4	100.0
CAT	1.0	2.2	3.0
LIN	4.0	9.4	30.0
CHOY	0.3	1.0	2.6
CHOYX	1.3	4.8	17.6
HIPRI	0.4	1.0	1.9
LOPRI	0.6	1.0	2.6

Precise definitions of variables and units employed are given in Chapter 5.

APPENDIX E Pearson Correlation Coefficients Between Variables in the Main Phase of Study.

E.1 Greengrocers

VAR	CUS	CSIZ	FAN	NOTH	NSI	H1	PED	POP	PPH	OHOM	OCAR
CUS	1.0										
CSIZ	0.49	1.0									
FAN	0.63	0.84	1.0								
NOTH	0.62	0.53	0.70	1.0							
NSI	0.07	-0.13	0.03	0.33	1.0						
H1	0.52	0.76	0.79	0.62	0.02	1.0					
PED	0.77	0.61	0.68	0.58	-0.08	0.53	1.0				
POP	0.58	0.88	0.79	0.52	-0.16	0.64	0.71	1.0			
PPH	-0.28	-0.18	-0.33	-0.27	-0.07	-0.36	-0.16	-0.17	1.0		
OHOM	0.11	-0.16	-0.06	0.23	0.35	-0.14	-0.08	-0.08	-0.04	1.0	
OCAR	0.26	-0.04	0.20	0.44	0.39	0.19	0.04	0.02	-0.64	0.69	1.0
UNITS	0.53	0.06	0.19	0.27	0.13	0.07	0.38	0.11	-0.1	-0.06	0.03
SHEL	0.59	0.19	0.30	0.53	0.29	0.25	0.35	0.20	-0.06	0.15	0.21
MIND	0.56	0.38	0.41	0.30	0.02	0.28	0.37	0.35	-0.12	0.16	0.12
FRON	0.18	-0.02	0.07	0.09	-0.02	0.02	0.23	-0.03	-0.01	-0.29	-0.22
PTAG	0.38	0.29	0.37	0.31	0.04	0.23	0.35	0.37	-0.24	0.09	0.23
SELF	0.57	0.20	0.37	0.35	0.18	0.26	0.47	0.26	-0.21	0.20	0.29
SPTIC	-0.42	-0.31	-0.41	-0.48	-0.18	-0.37	-0.35	-0.29	0.14	-0.04	-0.18
WIND	0.17	0.05	0.15	0.20	0.29	0.10	0.17	-0.02	0.03	0.13	0.12
XATT	0.46	0.42	0.49	0.35	-0.13	0.52	0.48	0.47	-0.27	-0.22	0.1
IATT	0.57	0.29	0.42	0.45	0.03	0.31	0.48	0.36	-0.14	0.01	0.1
XEQ	0.57	0.34	0.51	0.37	-0.06	0.38	0.56	0.41	-0.27	0.08	0.24
IEQ	0.56	0.32	0.46	0.43	-0.02	0.36	0.49	0.37	-0.26	0.07	0.23
LI	0.46	0.35	0.51	0.32	-0.03	0.32	0.48	0.40	-0.31	-0.03	0.15
PCSIO	0.39	0.30	0.38	0.45	0.18	0.34	0.34	0.29	-0.02	-0.08	0.07
CAT	-0.09	-0.01	-0.11	-0.01	0.08	-0.16	-0.13	-0.21	0.47	0.14	-0.26
LIN	0.51	0.24	0.30	0.46	0.21	0.29	0.40	0.26	-0.06	0.0	0.1
LINII	0.24	0.12	0.21	0.25	-0.03	0.25	0.21	0.18	-0.09	-0.1	0.04
CHOY	0.18	-0.11	-0.06	0.05	0.23	0.05	0.0	-0.08	-0.1	-0.15	-0.01
CHOY2	-0.05	-0.14	-0.17	-0.08	0.11	-0.21	-0.04	-0.13	0.04	-0.22	-0.17
CHOYX	-0.42	-0.11	-0.21	-0.47	-0.19	-0.14	-0.31	-0.17	0.08	-0.20	-0.27
HIPRI	0.04	-0.22	-0.11	-0.6	0.31	-0.11	-0.04	-0.28	-0.23	0.11	0.22
LOPRI	-0.06	-0.16	-0.05	0.01	-0.01	-0.25	-0.02	-0.24	0.08	0.16	0.16

Precise definitions of variables and units employed are given in Chapter 5.

E.1 Greengrocers (continued)

VAR	UNITS	SHEL	MIND	FRON	PTAG	SELF	SPTIC	WIND	XATT	IATT	XEQ
UNITS	1.0										
SHEL	0.49	1.0									
MIND	0.41	0.40	1.0								
FRON	0.38	0.05	-0.02	1.0							
PTAG	0.18	0.37	0.25	-0.07	1.0						
SELF	0.50	0.54	0.42	0.03	0.51	1.0					
SPTIC	-0.26	-0.42	-0.17	-0.21	-0.62	-0.45	1.0				
WIND	0.30	0.15	0.08	0.06	0.23	0.40	-0.32	1.0			
XATT	0.27	0.17	0.27	-0.03	0.27	0.39	-0.16	0.07	1.0		
IATT	0.46	0.38	0.23	0.22	0.38	0.53	-0.39	0.29	0.52	1.0	
XEQ	0.47	0.29	0.30	0.22	0.38	0.60	-0.28	0.32	0.59	0.58	1.0
IEQ	0.50	0.35	0.22	0.17	0.37	0.61	-0.33	0.44	0.57	0.78	0.77
LI	0.54	0.20	0.36	0.16	0.34	0.47	-0.26	0.35	0.37	0.51	0.64
PCSTO	0.32	0.42	0.08	0.22	0.26	0.41	-0.44	0.20	0.28	0.32	0.31
CAT	0.11	0.20	0.09	0.04	-0.08	-0.04	-0.09	-0.15	-0.28	0.05	-0.16
LIN	0.39	0.56	0.35	0.26	0.40	0.40	0.45	-0.0	0.32	0.47	0.26
LINII	0.21	0.27	0.08	0.1	0.20	0.28	-0.23	-0.24	0.32	0.41	0.16
CHOY	0.24	0.17	0.06	0.14	-0.06	0.03	0.09	-0.15	0.17	0.14	0.07
CHOY2	-0.18	-0.06	-0.19	0.43	-0.01	-0.32	0.0	-0.23	-0.11	-0.03	-0.02
CHOYX	-0.31	-0.79	-0.30	-0.04	-0.37	-0.48	0.43	-0.19	-0.05	-0.22	-0.20
HIPRI	0.24	0.09	0.14	0.08	0.05	0.36	-0.13	-0.28	-0.03	0.19	0.09
LOPRI	-0.14	0.02	0.19	0.17	0.11	0.36	-0.21	-0.26	-0.13	0.20	0.12

Precise definitions of variables and units employed are given in Chapter 5.

E.1 Greengrocers (continued)

VAR	IEQ	LI	PCSTO	CAT	LIN	LINII	CHOY	CHOY2	CHOYX	HIPRI	LOPRI
IEQ	1.0										
LI	0.61	1.0									
PCSTO	0.42	0.08	1.0								
CAT	0.20	0.09	0.02	1.0							
LIN	0.56	0.35	0.50	0.02	1.0						
LINII	0.27	0.08	0.44	0.03	0.55	1.0					
CHOY	0.17	0.06	0.26	-0.15	0.48	0.34	1.0				
CHOY2	-0.06	0.18	0.05	-0.04	0.24	0.15	0.52	1.0			
CHOYX	-0.79	-0.30	-0.22	-0.17	-0.29	-0.03	0.31	0.29	1.0		
HIPRI	0.09	0.14	0.15	-0.16	0.16	0.09	0.40	0.11	0.08	1.0	
LOPRI	-0.02	0.19	0.02	0.23	0.03	-0.02	-0.39	-0.23	-0.20	0.40	1.0

Precise definitions of variables and units employed are given in Chapter 5.

E.2 For Gent's Fashion Outfitters Shops

VAR	CUS	CSIZ	FAN	NOTH	NSI	H1	PED	POP	PPH	OHOM	OCAR
CUS	1.0										
CSIZ	0.16	1.0									
FAN	0.44	0.60	1.0								
NOTH	0.19	0.31	0.45	1.0							
NSI	0.27	0.53	0.61	0.65	1.0						
H1	0.21	0.46	0.61	0.31	0.40	1.0					
PED	0.63	0.50	0.74	0.18	0.47	0.44	1.0				
POP	0.17	0.89	0.65	0.25	0.44	0.57	0.59	1.0			
PPH	-0.11	0.27	0.0	0.06	0.02	-0.22	0.03	0.16	1.0		
OHOM	0.01	-0.35	-0.18	-0.19	-0.30	-0.01	-0.17	-0.35	-0.52	1.0	
OCAR	0.07	-0.45	-0.10	-0.02	-0.20	0.12	-0.12	-0.30	-0.92	0.67	1.0
ADV	0.73	-0.08	0.27	0.07	0.1	0.13	0.42	-0.05	-0.19	0.09	0.18
UNITS	0.63	0.15	0.41	0.01	0.15	0.24	0.57	0.20	-0.13	0.07	0.12
SHEL	0.75	0.31	0.45	0.22	0.18	0.28	0.63	0.33	0.01	0.1	-0.1
MIND	0.43	-0.08	0.30	-0.14	0.1	0.0	0.40	-0.04	-0.14	0.11	0.16
FRON	0.50	0.22	0.16	0.25	0.28	0.0	0.40	0.15	0.13	-0.10	-0.15
PTAG	0.22	0.20	0.45	0.22	0.23	0.13	0.26	0.27	-0.29	0.16	0.17
IND	0.22	0.06	0.27	0.13	0.15	0.07	0.31	0.03	-0.06	0.11	0.04
SELF	0.46	0.20	0.51	0.19	0.35	0.36	0.48	0.26	-0.34	0.16	0.23
SELFS	0.53	0.14	0.47	0.15	0.33	0.28	0.49	0.17	-0.23	0.17	0.16
SPTIC	-0.16	-0.16	-0.30	-0.15	-0.18	-0.03	-0.22	-0.20	0.20	-0.10	-0.09
WIND	0.29	0.30	0.38	0.07	0.33	0.23	0.43	0.28	-0.05	-0.16	-0.04
XATT	0.41	0.34	0.57	0.19	0.34	0.33	0.56	0.34	0.03	-0.18	-0.12
IATT	0.40	0.03	0.42	0.03	0.17	0.21	0.46	0.08	-0.22	0.07	0.17
XEQ	0.38	0.1	0.54	0.04	0.25	0.25	0.51	0.17	-0.14	0.02	0.15
IEQ	0.42	0.22	0.62	0.13	0.34	0.46	0.60	0.34	-0.24	0.04	0.16
LI	-0.02	0.11	-0.11	-0.03	-0.01	-0.05	0.04	0.12	0.29	-0.05	-0.26
PCSTO	0.17	-0.09	0.07	0.08	0.0	-0.01	0.13	-0.18	0.01	0.19	0.02
CAT	0.12	-0.06	0.02	0.0	-0.16	-0.08	0.04	0.01	-0.18	0.03	0.13
LIN	0.09	-0.28	-0.19	-0.16	-0.15	-0.37	-0.04	-0.37	-0.09	0.28	0.14
CHOY	0.42	0.40	0.42	0.24	0.15	0.34	0.49	0.42	0.04	-0.01	-0.05
CHOYX	-0.42	-0.14	-0.36	-0.07	-0.07	-0.27	-0.38	-0.20	-0.09	0.0	0.07
HIPRI	0.01	0.27	0.17	0.19	0.26	0.04	0.11	0.17	-0.02	-0.05	-0.02
LOPRI	0.02	0.26	0.11	0.05	0.11	0.12	0.06	0.19	0.0	0.0	-0.02

Precise definitions of variables and units employed are given in Chapter 5.

E.2 Gent's Fashion Outfitters (continued)

VAR	ADV	UNITS	SHEL	MIND	FRON	PTAG	INDP	SELF	SELFS	SPTIC	WIND
ADV	1.0										
UNITS	0.39	1.0									
SHEL	0.57	0.62	1.0								
MIND	0.43	0.51	0.30	1.0							
FRON	0.24	0.56	0.55	0.18	1.0						
PTAG	0.16	0.32	0.26	0.35	0.0	1.0					
IND	0.19	0.29	0.27	0.39	0.11	0.51	1.0				
SELF	0.34	0.49	0.40	0.55	0.18	0.55	0.35	1.0			
SELFS	0.41	0.54	0.47	0.57	0.20	0.47	0.32	0.92	1.0		
SPTIC	-0.11	-0.24	-0.19	-0.26	-0.06	-0.80	-0.53	-0.45	-0.37	1.0	
WIND	0.21	0.25	0.25	0.24	0.06	0.24	0.17	0.31	0.28	-0.28	1.0
XATT	0.28	0.28	0.41	0.36	0.27	0.20	0.22	0.39	0.38	-0.21	0.35
IATT	0.34	0.37	0.35	0.45	0.21	0.27	0.23	0.42	0.41	-0.26	0.35
XEQ	0.34	0.37	0.34	0.52	0.09	0.40	0.43	0.45	0.42	-0.48	0.51
IEQ	0.35	0.40	0.37	0.41	0.19	0.29	0.19	0.44	0.38	-0.31	0.40
LI	-0.15	0.02	0.01	0.12	0.05	0.03	0.04	0.13	0.1	-0.11	0.12
PCSTO	0.14	0.21	0.09	0.23	0.17	0.05	0.34	0.11	0.19	-0.09	-0.03
CAT	0.04	0.24	0.10	0.1	0.0	0.20	0.08	0.23	0.20	-0.23	0.12
LIN	0.17	0.15	0.06	0.17	0.15	0.10	0.01	-0.04	-0.02	-0.11	-0.08
CHOY	0.11	0.45	0.71	-0.04	0.38	0.17	0.26	0.17	0.14	-0.16	0.18
CHOYX	-0.35	-0.35	-0.51	-0.43	-0.13	-0.32	-0.12	-0.41	-0.45	0.07	-0.12
HIPRI	-0.08	-0.02	0.04	-0.1	0.16	-0.03	0.11	0.01	-0.07	-0.23	0.24
LOPRI	0.08	-0.07	0.04	0.26	0.13	-0.15	-0.06	0.01	0.04	0.01	0.16

Precise definitions of variables and units employed are given in Chapter 5.

E.2 Gent's Fashion Outfitters (continued)

VAR	XATT	IATT	XEQ	IEQ	LI	PCSTO	CAT	LIN	CHOY	CHOYX	HIPRI
XATT	1.0										
IATT	0.67	1.0									
XEQ	0.63	0.66	1.0								
IEQ	0.67	0.75	0.71	1.0							
LI	-0.06	0.01	-0.05	0.02	1.0						
PCSTO	0.15	0.22	0.22	0.16	-0.01	1.0					
CAT	-0.03	0.01	0.06	0.06	0.03	-0.04	1.0				
LIN	0.00	0.08	0.10	-0.01	-0.17	0.28	-0.02	1.0			
CHOY	0.36	0.23	0.25	0.21	0.0	-0.03	0.14	-0.03	1.0		
CHOYX	-0.21	-0.17	-0.20	-0.26	-0.19	0.10	-0.11	-0.12	-0.08	1.0	
HIPRI	0.31	0.22	0.25	0.18	-0.06	-0.1	-0.21	-0.05	0.25	0.44	1.0
LOPRI	0.30	0.19	0.18	0.23	0.08	-0.01	-0.2	-0.2	0.18	0.31	0.63

Precise definitions of variables and units employed are given in Chapter 5.

LIST OF REFERENCES

ALDRICH H. 1980 "Asian Shopkeepers as a Middleman Minority: A Study of Small Businesses in Wandsworth." in EVANS A. + EVERSLEY D. "The Inner City: Employment and Industry", Heineman, London 1980.

ALONSO W. 1964 "Location and Land Use", Harvard University Press.

ALPERT M.I.+ BIBB J.F. 1974 "Fitting Branch Locations, Performance Standards and Marketing Strategies: A Clarification", Journal of Marketing, vol 38, no 2, April, pp72-74.

ALT M. + BRIGHTON M. 1981 "Analysing Data or Telling Stories" Journal of the Market Research Society, 23.4 pp.209-219

AMERICAN MARKETING ASSOCIATION (AMA) 1948 "Report of the Definitions Committee", Journal of Marketing, vol 13 October pp. 202-217

APPEL D.L. 1970 "Market Segmentation-A Response to Retail Innovation", Journal of Marketing, vol 34 pt 2 pp.64-67

ARSENIAN J. M. 1943 "Young Children in an Insecure Situation", Journal of Abnormal and Social Psychology, 38, pp.225-249.

BAILEY K.D. 1982 "The Methods of Social Research" Free Press, New York.

BECHHOFER F.+ ELLIOTT B.+ RUSHFORTH M.+ BLAND R. 1974 "Small Shopkeepers: Matters of Money and Meaning", Sociological Review, November, pp.465-482

BENNET R. 1978 "The Provision of Management Education and Development for Small Firms", in GIBB + WEBB 1980 op. cit.

BERESFORD P. 1969 "The Small Shopkeeper", New Society, 1st May pp. 670-672

BERRY B.J.L. 1967 "Geography of Market Centres and Retail Distribution" ,Prentice Hall, Engelwood-Cliffs, New Jersey.

BERRY L.L. 1980 "Perspectives on the Retailing of Services", in STAMPFL + HIRSCHMAN 1980 op. cit.

BERTAUX D.+ BERTAUX-WIAME E. 1981 "Artisanal Bakery in France ,How it Lives and Survives", in BECHHOFER F.+ELLIOT B. "The Petite Bourgoisie, Comparative Studies in an Uneasy Stratum", Edinburgh Studies in Sociology, MacMillan, London

BIRMINGHAM CITY COUNCIL 1973 "City of Birmingham Structure Plan: Shopping"

BOLTON J.E. 1971 "Report of the Committee of Inquiry on Small Firms", HMSO, London.

BREHENY M. 1983 Paper given to a conference on "Shop Location Analysis." February 1983, reported in Retail and Distribution Management, March-April 1983, pp25-30.

BRITISH ROAD FEDERATION 1961-1986 "Basic Road Statistics" Annual, Authors

CAHILL J. 1966 "Can a Smaller Store Succeed?", Fairchild, New York.

CAMPBELL W.J.+ CHISHOLM M.D.I. 1970 "Local Variation in Retail Grocery Prices", Urban Studies 7, pp.76-81

CENSUS OF DISTRIBUTION 1961, HMSO.

CENSUS OF DISTRIBUTION 1971,HMSO.

CHANNON D.F.+ GUNTZ S.P.+ DESMOND J. 1981 "Franchising in the

United Kingdom", Manchester Business School Review, Spring.
CHAIN STORE AGE EXECUTIVE 1978 "Why they shop some centres" vol 54 pp32-35
CHELL E.+ HAWORTH E. 1983 "A Study of Factors Affecting the Sales Performance of Independant Newsagents", Paper presented to the National Small Business Policy and Research Conference, University of Durham.
CHRISTALLER W. 1933"Die Zentralen Orte in Suddeutschland", Jena (translated by C. Baskin "The Central Places of Southern Germany", Prentice Hall 1966)
CLARK E.D. 1982 "The Craft of Selling in Department Stores", Retail and Distribution Management, Jan-Feb p35.
CLAWSON C.J. 1974 "Fitting Branch Location Performance Standards and Marketing Strategies to Local Conditions". Journal of Marketing, vol 38, Jan, pp8-14.
CLAXTON J.D. + RITCHIE J.R.B. 1979 "Consumer Prepurchase Shopping Problems, a Focus on the Retailing Component", Journal of Retailing, vol 55 ,fall, pp.24-43. cited by ENGEL + BLACKWELL 1982 op. cit
COHEN J.+ APPLEBAUM 1960 "Evaluating Store Sites and Determining Store Rents", Economic Geography, vol. 36
COLE H. 1975 "Up the Hypermarket", New Society 34, pp.542-3.
CONVERSE P. 1949 "New Laws of Retail Gravitation", Journal of Marketing, vol 13, October, pp379-388. cited by ENGEL + BLACKWELL 1982 op cit
CO-OPERATIVE NEWS 1985 "Fresh Way to Profit" Wed. Jan 9
CORDEY-HAYES M. 1968 "Retail Location Models", CESWP.
DARDEN W.R. + LENNON J.J. + DARDEN D.K. 1978"Communicating with Intra- Urban Shoppers", Journal of Retailing, vol 54, spring, 51-64
DAVIES R.L. 1973 "Evaluation of Retail Store Attributes and Sales Performance", European Journal of Marketing, vol 3, No 2 pp89-102.
DAVIES R.L. 1976 "The Recent History and Problems of Small Shops and Related Businesses", in JONES P.+ OLIPHANT R. (Eds) 1976 "Small Shops: Problems and Policies", Unit for Retail Planning Information, Reading.
DAVIS P. 1982 "The Shape of Retail Trading Policies", Retail and Distribution Management, September-October, pp8-13.
DAWSON J.A. 1983 "Public Policy Controls on Hypermarket Development" University of Stirling, Dept of Business Studies.
DAWSON J.A.+ KIRBY D.A. 1977 "Problems and Policies Affecting the Small Shop", International Journal of Physical Distribution, 7.5.77
DAWSON J.A. + KIRBY D.A. 1977B"Shop Size and Productivity in the 1960s : Some Evidence from the 1971 Census of Distribution", European Journal of Marketing, vol III, no 4.
DAWSON J.A.+KIRBY D.A. 1979 "Small Scale Retailing in the U.K." Saxon House, Farnborough.
DEUTSCH M. 1949 "An Experimental Study of the Effects of Co-operation and Competition upon Group Processes", Human Relations, 2, pp.199-231.

ECONOMIC TRENDS 1960-1986, monthly, HMSO, London.
ECONOMIST INTELLIGENCE UNIT (1972) "Economies of Scale in Retailing", Retail Business 175, pp. 14-25
EDC FOR THE DISTRIBUTIVE TRADES 1970 "Urban Models in Shopping Studies", NEDO, London.
EDC FOR THE DISTRIBUTIVE TRADES 1975 "Report on the Census of Distribution and Other Services 1971", SD21, pt 12, HMSO, London.
EDC FOR THE DISTRIBUTIVE TRADES 1976 "A Structural Model of British Retail Trades", NEDO, London.
ELIOT S. 1983 "The Crisis in the Co-operative Movement", Retail and Distribution Management. July-August pp.8-14
EMPLOYMENT GAZETTE 1962-1986 Monthly, Department of Employment, HMSO
ENGEL D.+ BLACKWELL R. 1982 "Consumer Behaviour" Holt Rheinhart Winsten
EUROMONITOR 1983 "Electronic Developments in Retailing" Euromonitor Publications.
EUROMONITOR 1985"U.K. Retailing" Euromonitor Publications.
FENWICK I. 1979 "Forecasting Performance for Financial Outlets". European Journal of Marketing, vol 13, no 5, p332
FINANCIAL TRENDS 1961-1986, Monthly, HMSO
GELB B. 1982 "No-Name Products a Step Towards No-Name Retailing". Business Horizons, June p9.
GENTRY J.W. + BURNS A.C. 1978"How Important are Evaluative Criteria in Shopping Centre Patronage?" Journal of Retailing, vol 53, winter p73.
GIBB A.+ WEBB T. 1980 "Policy Issues in Small Business Research", Saxon House, Farnborough.
GOLDSMITH + CLUTTERBUCK (1984) "The Winning Streak", Penguin Books Ltd, Middlesex
GUY C. 1976 "The Impact of Changes in Shopping Patterns Upon the Less Mobile Customer" Address given to PTRC Annual Summer Meeting 12-16 July, University of Warwick.
GUY C. 1983 Paper Given to a Conference on "Shop Location Analysis" reported in Retail and Distribution Management, March-April, pp25-30
HALL M.+ KNAPP J. 1955 "Gross Margins and Efficiency Measurements in Retail Trade", Oxford Economic Papers, New Series VII, October. pp.312-326
HALLSWORTH A.G. 1982A "Trading Patterns of a District Centre Superstore : Asda Waterlooville", Department of Geography, Portsmouth Polytechnic.
HALLSWORTH A. 1982B "Superstore Competition", Retail and Distribution Management, July-August 1982
HANSEN R.A. + DEUTSCHER T. 1977 "An Empirical Investigation of Attribute Importance in Retail Store Selection" Journal of Retailing, vol 53, winter. cited by ENGEL + BLACKWELL op.cit.
HARMAN R.G.1979 "Support for the Village Shop - Has it a place in Rural Planning?", Paper given at PTRC Summer Annual Meeting, University of Warwick, Proceedings Published.
HEDDERWICK, STIRLING, GRUMBAR 1979 "Multiple Explosion", The Firm, London

HILL S.R. 1966 "The Distributive System", Pergamon Press, London.
HENKSMEIER K.H. 1960 "The Economic Performance of Self-service in Europe", D.E.E.C. Paris.
HILLIER PARKER 1979 "Shop Rents" Research Report No. 3, The Firm, London.
HILLIER PARKER 1981 "Multiple Shop Branch Numbers" The Firm, London.
HILLIER PARKER 1982 "British Shopping Developments" originally published 1979 - supplements 1980,1981,1982, The Firm, London.
HOLLANDER S. 1973 "The American Retailing Scene", Retail and Distribution Management, March.
HOLTON R.H. 1958 "The Distinction Between Convenience Goods Shopping Goods and Specialty Goods", Journal of Marketing, July p53-56.
HOWARD J. 1977 "Consumer Behaviour: Application of Theory" New York, McGraw-Hill.
HUDSON R. 1974 "Consumer Behaviour: A Conceptual Model and Empirical Investigation", Unpublished PhD Thesis, University of Bristol.
HUFF D. 1963 "A Probabilistic Analysis of Shopping Centre Trading Areas" Land Economics vol 53.
HUGHES J.D.+ POLLARD S. 1957 "Gross Margins in Retail Distribution", Oxford Economic Papers, vol. 9 pp. 75-87
INSTITUTE OF FISCAL STUDIES 1984 "The Economic Effects of Sunday Trading", The Guardian, Nov. 22.
JEFFERYS J.B. 1954 "Retail Trading in Britain 1850-1950" Cambridge University Press, Cambridge.
JEFFERYS J.B.+ HALLSBERGER S.+ LINBLAT G. 1954 "Productivity in the Distributive Trades in Europe, Wholesale and Retail Aspects", DEEC Paris.
JOLSON M.A. + SPATH W.F. 1973 "Understanding and Fulfilling Shoppers' Requirements: An Anomaly in Retailing", Journal of Retailing, vol 49, summer, pp38-46.
JONES P.M. 1982 "Hypermarkets and Superstores: Saturation or Future Growth", Retail and Distribution Management, July-August 1982.
JONES P. + OLIPHANT R 1976 "Local Shops: Problems and Prospects", Unit for Retail Planning Information, Reading.
KEISER S.K. + KRUMM J.R.1976 "Consumer Perceptions of Retail Advertising with Overstated Price Savings", Journal of Retailing, vol 52, fall, pp27-36, cited by ENGEL + BLACKWELL 1982 op. cit.
KELLY R.F. 1967 "The Role of Information in Patronage Decisions: A Diffusion Phenomenon", in MAYER M.S. + VOEBURGH R.E.(eds) "Marketing for Tomorrow Today", American Marketing Association, Chicago.
KEYNOTE PUBLICATIONS LTD. (1982) "Multiple Stores", Authors, London.
KIMBER A. 1985 "Irradiation: Waiting for the Green Light", Food Manufacture, vol 60, no 2, (Feb)
KIRBY D.A. 1974A "Supply Problems of Small Unit Grocers", International Journal of Physical Distribution, 4.5.74, p.276

KIRBY D.A. 1974B "The Decline and Fall of the Smaller Retail Outlet A Geographical Study", Retail and Distribution Management, vol. 2 no.3 Jan/Feb.

KIRBY D.A. 1976 "Planning and the Small Shop, The Scandinavian Example", Retail and Distribution Management, vol. 4, no. 5 Sept/Oct.

KIRBY D.A. 1976 "The North American Convenience Store: Implications for Britain", in JONES + OLIPHANT (EDS) op. cit.

KIRBY D.A. 1979 "Problems of Small Retail Establishments in Inner-city Areas", in GIBB A. + WEBB T. 1979 "Policy Issues in Small Business Research" Saxon House, Farnborough.

KIRBY D. A. 1982 "The Case for the Village Shop." Retail and Distribution Management, September-October.

KETS DE VRIES M.F.R 1977 "The Entrpreneurial Personality: A Person at the Crossroads", Journal of Management Studies, vol. 13 no.2

KLINGENDER F.D. 1951 "The Little Shop", Current Affairs 127, 3rd March pp. 17-18.

KOTLER P. 1973 "Atmospherics as a Marketing Tool", Journal of Retailing vol.49 pp48-63 cited by ENGEL + BLACKWELL 1982 op. cit.

KUNKELL J.H.+ BERRY L.L. 1968 "A Behavioural Conception of Retail Image", Journal of Marketing, vol 32, October pp21-27.

LAURENCE R.J. 1982 "To Hypothesise or Not to Hypothesise: The Correct Approach to Survey Research", Journal of the Market Research Society, October, vol 24, no 4

LEE M.+ KENT E. 1975 "Caerphilly Hypermarket Study: Year II", Donaldsons Research Report No 2, London.

LEE M.+ KENT E. 1977 "Brent Cross Study", Donaldsons Research Report No. 4, London.

LEWIS J.P. + TRAILL A.L. 1968 "The Assessment of Shopping Potential in the Demand for Shops", Town Planning Review, Jan

LIPSTEIN B. 1980 "A Review of Retail Store Experiments", in STAMPFL + HIRSCHMAN (EDS) op. cit. LINDQUIST J.D. 1974 "The Meaning of Image", Journal of Retailing, vol 50, Winter, pp29-38, cited by ENGEL + BLACKWELL (1982) op. cit.

LIVESEY F. + NAGY E.A 1981 "Independents Versus Affiliation", Retail and Distribution Management, May/June 1981 pp.26-29

MACKIE S. 1979 "The Efficient Use of Retail Floorspace Ratios", Paper given at PTRC Summer Annual Meeting, University of Warwick, Proceedings Published.

MACLAURIN I. 1983 Paper given at Hampshire County Council/EDC for Distributive Trades Conference on Retail Planning. cited by Retail and Distribution Management Jan/Feb 1983 op.cit.

MALLEN B. 1964 "Conflict and Cooperation in Marketing Channels" in SMITH L.G. "Reflections on Progress in Marketing", American Marketing Association, Chicago.

MANCHESTER UNIVERSITY 1964 "Regional Shopping Centres in the North-West of England: The Report on an investigation into a proposal of a Regional Shopping Centre at Haydock Lancashire." Department of Town and Country Planning.

MARTINEAU P. 1958 "Social Class and Spending Behaviour", Journal of Marketing, vol 23.

MASON J.B. + MAYER M.L. 1981 "Modern Retailing Theory and Practice", Business Publications Inc. Plano Texas.
MATTHEWS H. + SLOCUM J. 1969 "Social Class and Commercial Bank Credit Card Usage", Journal of Marketing, vol 33
McCONKEY R.C. 1975 "The True Cost of Small Drops: Is it Realised by Suppliers?" Retail and Distribution Management, July-August, pp53-55.
McCARTHY E.J. 1978 "Basic Marketing a Managerial Approach", Richard D. Irwin, Homewood Illinois p281
McGIVERN C.+ OVERTON D. 1980 "A Study of Small Firms and their Management Development Needs", in GIBB + WEBB 1980 op. cit.
MEDIA EXPENDITURE ANALYSIS LTD 1971-1986 Quarterly, The Firm.
MERCER A. 1974 "Distribution in the Distributive Trades" in Thorpe (ED) op. cit.
MONOPOLIES AND MERGERS COMMISSION (GB) 1981 "Discounts to Retailers : A Report on the General Effect on the Public of the Practice of Charging some Retailers Lower Prices than Others, Providing Special Benefits to Some Retailers, Where the Difference Cannot be Attributed to Savings in the Suppliers Costs", HMSO, London.
MPC and ASSOCIATES 1973 "The Changing Pattern of Retailing in Westrern Europe", Worcester.
MILLER J. 1976 "Store Satisfaction and Aspiration Theory", Journal of Retailing, vol.52, fall, pp65-84
NATIONAL CONSUMER COUNCIL (NCC) 1983 "Minorities in the Market Place - A Study of South Asian and West Indian Shoppers in Bradford", Authors, London.
NEILSEN (AC) COMPANY 1971 "Annual Review of Grocery Trading". The Neilsen Researcher.
NEILSEN (AC) COMPANY 1975 "Annual Review of Grocery Trading". The Neilsen Researcher, No 2, 1975.
NIE N.H.+ HULL C.H.+ JENKINS J. G.+ STEINBRENNER K. 1975"Statistical Package for the Social Sciences" McGraw-Hill, N.Y.
NIGHTINGALE 1979 "Retailer Power in the Grocery Trade", Paper given at PTRC Annual Summer Meeting, University of Warwick, Proceedings Published.
NORTHUMBERLAND COUNTY PLANNING DEPT. 1963 cited by Watkin op.cit.
OFFICE OF POPULATION CENSUSES AND SURVEYS 1981 "Census 1981 - Ward and County Reports" HMSO.
OLLINS W 1982 "Is This the End of the Line for the High and Mighty Brand". Campaign, Jan 29, 1982. p22.
ORNSTEIN E. 1976 "The Retailers- A Study in Successful Marketing and Promotion", Associated Business Press, London.
PACKARD V. 1957 "The Hidden Persuaders", Longmans, London.
PIACHAUD D. 1974 "Do the Poor Pay More?", Child Poverty Action Group, London.
PICKERING R. 1974 "Retail Price Maintenance", in Thorpe D. (ed) "Research into Retailing and Distribution", Saxon House, Farnborough.
POPE M.P.R. 1979 "The Retailers Viewpoint on Sales Intensity - A Short Paper", Paper given at PTRC Annual Summer Meeting, University of Warwick, Proceedings Published.

REILLY W.J. (1929) "Methods for the Study of Retail Relationships", Bureau of Business Research, University of Texas Press, Austin.
REILLY W.J. 1931 "The Law of Retail Gravitation", New York
RETAIL AND DISTRIBUTION MANAGEMENT (RDM) JAN/FEB 1983 "Ten Years of RDM" pp 4-7
RETAIL AND DISTRIBUTION MANAGEMENT (RDM) MAR/APR 1983 "The Impact of Cable TV on Retailing" pp 8-11
ROGERS D.S. 1977 "Retail Development and Consumer Adjustment: The Impact of an Edge of Town Superstore", Unpublished PhD Thesis , University of Reading.
RUSSO J.F.1980 "The Decision to use Product Information at the Point of Purchase", in STAMPFL + HIRSCHMAN (EDS) op cit.
SCHATZMAN L.+ STRAUSS A.L. 1973 "Field Research", Prentice Hall, New Jersey, ch.5
SCHIFFMAN L.G. + DASH J.F. + DILLON W.R. 1977 "The Contribution of Store Image Characteristics to Store Type Choice", Journal of Retailing, vol 53, summer, pp3-14 cited by ENGEL + BLACKWELL 1982 op. cit.
SCOTTISH DEVELOPMENT DEPARTMENT 1978 "The Impact of a Town Centre Superstore" HMSO.
SDA 25 1976-1980 "Retail Sales" Biennial, Business Monitor, HMSO.
SDO 25 1982 "Retail Sales 1982" Business Monitor, HMSO.
SELVIN H.C.+ STUART A. 1966 "Data Dredging Procedures and Survey Analysis", The American Statistician 20, 3, pp. 20 -23 cited by LAURENCE 1982 op. cit.
SIMMONS G. 1981 "The Effect of the Recession on the Retail Trade" ,Retail and Distribution Management, May-June
SMITH A.D. 1971 "Small Retailers Problems and Policies", Great Britain, Committee of Inquiry on Small Firms, Research Report No. 15, HMSO, London.
SMITH J. + GRAY J.G. 1972 "Redevelopment and the Small Trader: A Comparative Study Between Edinburgh and Twenty British Towns cited by Dawson and Kirby 1977 op.cit.
SOCIAL TRENDS 1972-1986 Annual, HMSO
STACEY N.A.H.+ WILSON A. 1965 "The Changing Pattern of Distribution." Business Publications, London.
SPENCER H. 1982 "The Shop Hours Issue"Paper Given to a Conference on "Shop Hours" at University of Leicester, November 3, 1982
STAMPFL R.W. + HIRSCHMAN E.C. "Theory in Retailing: Traditional and Non-traditional Sources", American Marketing Association, Chicago, Illinois.
STANWORTH M.J.K.+ CURRAN J. 1976 "Growth and the Small Firm:An Alternative View", Journal of Management Studies, vol. 13 no. 2
STEVENS S. 1946 "On the Theory of Scales in Measurement", Science 103, pp. 677-680. cited by NIE N.H.+ HULL C.H.+ JENKINS J.G.+ STEINBRENNER K. 1975 "Statistical Package for the Social Sciences", McGraw-Hill, New York. p.5
THE GUARDIAN JULY 26TH 1986 "Evasion on Worst Poverty Figures"
THE GUARDIAN OCT 2ND 1986 "Sunday Trading Threat"
THORPE D. 1974 (ED) "Research into Retailing and Distribution", Saxon House, Farnborough.

THORPE D, KIRBY D.A., THOMPSON C. 1972 "Channels and Costs in Grocery Distribution." Retail Outlets Research Unit, Manchester Business School, Research Report No. 8, May.

THORPE D.+ McGOLDRICK P.J. "Carrefour Caerphilly: Consumer Reaction", Research Report No. 12, Retail Outlets Research Unit, Manchester Business School.

TILLEY R.P.R.+ HICKS R. 1970 "Economies of Scale in Supermakets", Journal of Industrial Economics, vol.xix no.1, Nov, pp. 1-5

WATKIN D.G. 1978 "Small Shops in Mid-Wales", Unpublished PhD Thesis, University of Wales, St Davids College, Lampeter.

WEBB E.J.+ CAMPBELL D.T.+ SCHWATZ R.D.+ SEECHREST L. 1966 "Unobtrusive Measures: Non Reactive Research in the Social Sciences", Rand McNally, Chicago.

WHIMSTER C. 1981 "The Operation of an Independent Distribution System" Retail and Distribution Management JUL/AUG, pp 59-63

WOMAN MAGAZINE 1983 "Supermarket Survey - The Results", pp20-21

YATES A.R. 1978 "A Behavioural Approach to the Study of Retail Location." Unpublished PhD. Thesis University of Aston in Birmingham.

ZIMBARDO P.G. 1979 "Psychology and Life" 10th Ed. Scott,Foresman and Co, Clearview Illinois, p303.

ZYBYTNIEWSKI J. 1980 "Eating out in Supers", Progressive Grocer June, pp68-72 cited by Engel and Blackwell 1982 op cit.